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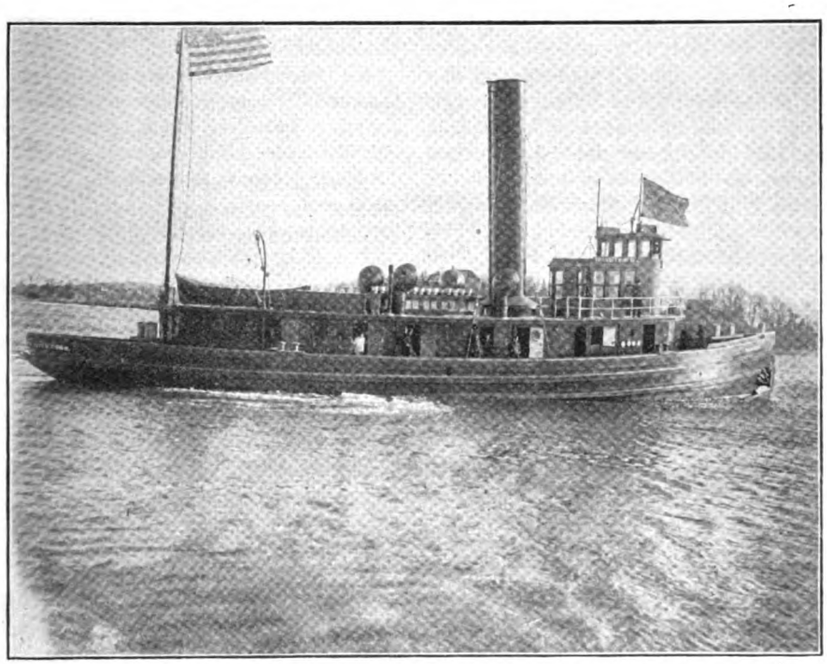
TRANSFER TUG NO. 21.

The Fore River Ship Building Co., Quincy, Mass., has just completed and delivered transfer tug No. 21 for the New York, New Haven & Hartford railroad. The vessel was built under the supervision of J. Howland Gardner, marine superintendent of the New England Steamship Co., which is the marine end of the New York, New Haven & Hartford railroad. The vessel left the works of the builders Jan. 19, and was delivered in New York the following day. During the run down the coast a speed of more than 12 knots was developed although no attempt at high speed was made. The vessel will be used as a transfer in New York harbor.



TRANSFER TUG NO. 21 OF THE NEW ENGLAND STEAMSHIP CO.'S FLEET.
Built by the Fore River Ship Building Co., Quincy, Mass.

Transfer No. 21, is a single screw towboat of the following dimensions:—Length, between perpendiculars, 111 ft. 10½ in.; breadth, molded, 26 ft. 6 in.; depth, molded, 14 ft. 6 in.

In design and general appearance she is similar to existing towboats of the Owners' fleet, having a towboat stern and round-up stem, with one smoke stack and one signal mast. A steel deck house has been built on the main deck and extends for about three-quarters of the vessel's length amidships, which in addition to inclosing the engine and boiler hatches, has accommodations and mess room for the crew in the after part and the powerful wrecking pumps in the fore part. On top of this house is a wood erection inclosing pilot house and directors' room. The vessel has been fitted with powerful oak towing bitts and nigger heads capped with brass, and is fended all fore and aft with stout oak guards faced with steel, in addition to the usual portable hickory fenders.

Provision is made for the transport of fresh water in two deep tanks in the fore and aft peaks.

The propelling machinery consists of one set of inverted, compound, surface-condensing, direct-acting engines with a high pressure cylinder 20 in. diameter, and a low pressure cylinder of 44 in. diameter, having a common stroke of 28 in. designed for a working pressure of 160 lbs. per square inch, steam being supplied by one multitubular return tube Scotch boiler 15 ft. 3 in. mean diameter by 12 ft. 6 in. long, fitted with three corrugated furnaces 4 ft. 2 in. inside diameter.

A duplex fire and wrecking pump 15 x 12 x 12 fitted with fire plugs and wrecking suctions, the former arranged for fire gun nozzle on top of pilot house, has been installed with all connections complete, arranged to pump from tanks, engine and boiler compartments as well as from the sea. The usual outfit of auxiliary machinery has been supplied and fitted complete as usual in this class of vessel.

Altogether the vessel has been constructed and equipped in the most up-to-date improved modern manner and should prove on service a valuable addition to the New England Steamship Co.'s already extensive fleet.

The steam collier Melrose, the third of the fleet of the Massachusetts Steamship Co., left the works of the Fore River Ship Building Co., on Sunday, Jan. 12, proceeding to Norfolk in ballast where she took on bunker coal, and sailed for Sabine Pass for a cargo of sulphur. This vessel has been chartered

for six months. On her trial trip the Melrose developed higher speed than either of her sister ships, maintaining an average of 12.2 knots for four hours. The captains of all three ships report the vessels to be excellent sea boats in heavy weather. The Everett was recently caught in a 72 mile gale on Nantucket Shoals and rode through without any damage and with little discomfort to the crew, maintaining a speed during the heaviest part of the blow of over six knots.

The steamer Altamaha, the fifth of the Brunswick Steamship Co.'s fleet, will be finished on Jan. 25. On account of the falling off in coastwise trade it is not the intention of the Owners to place her on the line immediately but she will be kept tied up at the works of the builders in Quincy.

The work on the U. S. S. North Dakota is proceeding very rapidly and the vessel is considerably ahead of the schedule which calls for completion in 34½ months. With the exception of a few scattered items all the steel for this vessel has been shipped and in the yard.

The scout cruiser Birmingham will have her trials off the coast of Maine during the first week in March. The vessel will leave the works on Feb. 24 and will go in dry dock at the Navy Yard, Boston, for the purpose of cleaning and painting the under water body. She will then proceed to Rockland, Maine, where the builders will conduct some standardizing runs for information and training of the crew, after which the final trials will take place on or about March 2. The trials of the Salem will probably follow inside of a month.

The work on Light Vessels 90-93 is progressing rapidly; the vessels being practically in frame and the plating in bulkheads well advanced. The engines and boilers for these vessels are being constructed by the New York Ship Building Co., being duplicates of those installed in the vessels built at that yard.

The material for the seven submarine boats recently awarded to the Electric Boat Co. is almost all rolled and shipped and actual work of constructing the boats will soon commence.

The first set of 144 in., 12,000 H. P. Curtis marine turbines for the Japanese government will be shipped to Japan during the month of February.

The new 110 ft. extension to the machine shop has been completed and is now in use. This will greatly relieve the congestion which existed in the old shop and will permit of much more rapid work in the future.

HARBOR SAN PEDRO.

San Pedro, Cal., Jan. 25.—A witty Frenchman once described the Strait of Dover (le Pas de Calais), as "un pas du serieux au ridicule" (a step from the ridiculous to the sublime). Now, the 23 miles of rolling prairie, not to mention the mountains, between Los Angeles and San Pedro have been alluded to as "a step from the haughty and aristocratic to the commercial and democratic."

And the Los Angelans are fully determined to take that step; in fact, the citizens of the city a few hundred feet above sea level already refer to San Pedro as "our harbor" and eagerly await the time when the channel from San Pedro toward the San Gabriel river shall permit ships to come within 15 miles of their city hall.

The principal thing to be done in order to make Los Angeles possibly the first, but certainly the second, seaport of the Pacific coast, is to overcome railroad monopoly.

In explanation of the above, let us cite figures—which are proverbial truth tellers.

In 1903 the Interstate Commerce Commission reported that the railway tariffs between New York and Los Angeles, Chicago and Los Angeles, in carload lots, upon several principal classes of commodities, was $25 per ton. Now, grain, according to the reports of the department of commerce and labor, has for years been transported from points on Puget Sound to Europe for never more than $4 per ton.

In view of the enormous difference in these charges for transportation it may be interesting to hear that the 1,000,000 tons of interstate commerce freight, estimated to pass yearly in and out of Los Angeles by rail, cannot take the water route against the railroad's reiterated "veto."

Said a prominent lawyer of San Pedro: "A railroad company organizes its working forces into four principal departments, and one of these is under the head of a chief 'plugger,' who inspects, or causes to be inspected, all the points on oceans, bays and other navigable waters where competition might arise, and who then 'plugs up' such points, ports or harbors."

It is now claimed that a "plugger" has successfully done his work in this section of the country, and the Los Angelans, ambitious to have their city become the New York of the Pacific coast, insistently demand the removal of "the plug" from San Pedro—their harbor.

And it is a harbor well worth possessing. Yachts, numerous and of all sizes and descriptions, need never be "laid up" in the fall, for winter is an unknown quantity in San Pedro.

A 1,200-ton French bark recently arrived here with cement from the Orient; steamers, especially at a time when winter holds forth on the Atlantic coast, do a rushing business carrying passengers to and from San Catalina Island; so-called "steam-schooners," which on the Atlantic coast would be named "tramp steamers" and on the lakes "steam barges," arrive daily with lumber and shingles from the north.

Those who, like the old lady in the story, cannot sleep comfortably on shipboard because the thought that only a thin plank is between them and a watery grave keeps uppermost in their minds, might not enjoy a trip in one of San Pedro's "glass-bottom" boats. The transparent bottom has been inserted to enable passengers tired of the monotony of nothing but beautiful sights above the water, an opportunity to view the wonders of the deep.

Of course, there are fishermen, professional and otherwise.

The boats of the former—the professionals—may have been "made in America, but they were certainly designed on the Mediterranean shores.

Lugsails and pointed sterns are not affected by American-born fishermen, and the different vivid colors of paint, with which the sides of these boats have been made rainbow-hued, can only have been the selection of a Portuguese or an Italian. A large, four-masted English bark is just now being towed into port; it is low tide, the vessel is loaded to her full capacity and there is no waiting for flood tide.

As for the safety of this port; is there shelter against all storms from any direction? And any citizen of Los Angeles, 23 miles north, a few hundred feet above sea level, would ask in a "where-may-you-have-come-from" tone: "Have you not yet seen our million-dollar breakwater? Take the San Pedro car; 50 cents the round trip; it's well worth it."

F. H.

The shortest time in which a sailing vessel has ever crossed the Atlantic is nine days and seventeen hours. This remarkable feat was achieved by the famous American clipper-ship Dreadnaught, which in the early fifties frequently beat the time of the trans-Atlantic steamers of her day. The distance was from Sandy Hook to Queenstown.

FIRE-CONTROL ON WARSHIPS.

Concerning the recent tests of gun fire on the old British battleship Hero, which was used as a target, the *Army and Navy Journal* says:

"The tests were instituted partly to show the effect of strong fire from secondary batteries upon the upper works of an armored ship, and partly to ascertain the effect of such fire upon the intricate fire-control apparatus, which is an important feature of the equipment of modern naval vessels. The efficiency in battle of the warship of today is largely dependent upon a system of fire-control whereby the full power of her armament may be maintained and exerted at the decisive moment. The development of this system has led to the installation on such vessels of a great deal of electrical and mechanical apparatus of remarkable delicacy and intricate character. A full outfit of this apparatus was installed on the Hero, and dummies representing officers and bluejackets were placed at the various stations which the personnel would occupy in the hour of battle. The old ship was then subjected to a heavy fire from the 6-in. guns of two armored cruisers at various ranges.

"The effects of this fire are significant if not actually startling. It appears that the entire fire-control system of the target ship was paralyzed within two or three minutes after the firing began, a fragment of shell having penetrated the mast, cutting every wire of her fire control installation. In other words, had the action been a real one, the Hero would have been rendered virtually helpless at the very outset of the engagement and an easy prey to the enemy.

"That the British admiralty are impressed with the results of these tests is indicated by the announcement that no official statement concerning them will be published. But, assuming the correctness of the unofficial reports, it is clear that the firing teaches a lesson which progressive naval scientists cannot safely ignore. The intricate electrical appliances of the modern warship really constitute her nervous system, and that part of it devoted to the function of fire-control is so vital that its destruction may be regarded as almost equivalent to defeat in battle with an adversary of similar fighting power. Consequently, the results of the firing on the Hero seem to suggest that an immediate problem is to devise such means as shall provide greater security for this important apparatus in the hour of battle. Battle conditions require that this fire-control mechanism shall be installed aloft, the higher the elevation the greater its efficiency in range-finding, fire-direction and other vital functions. Its vulnerability to gun fire when so installed has, however, been so forcibly demonstrated in the case of the Hero, that prudence suggests persistent effort to render it more secure against destruction or impairment by the enemy's fire. We understand that the British naval authorities have been for a year or more experimenting with a new and secret system of fire-control, the joint product of a navy officer and a civilian engineer, which, it is claimed, will entirely displace the present system and provide a system the efficiency and security of which are almost absolute even in battle operations. These experiments, one may safely infer, will be greatly accelerated by the disconcerting but instructive results of the tests with the Hero.

"Another lesson of the firing at the unmanned British battleship is that demoralization among the personnel may be a determining factor in a sea-fight. With her system of fire-control destroyed, the destruction of her upper works might conceivably produce conditions approaching panic under which the officers and men of the best ship in the best navy of the world would be at a grievous disadvantage. The problems suggested by the tests with the Hero, we believe, afford and will receive the attentive study of our own unsurpassed naval experts."

NEW ESTIMATE OF CANAL COST.

Col. Goethals, chief engineer and chairman of the Isthmian canal commission, and ex-Senator Blackburn, now governor of the canal zone, appeared before the Insterstate and Foreign Commerce committee of the house on Jan. 14 to give information regarding the progress of the work and other canal affairs. In his estimate Col. Goethals has stated that the total cost, including the $40,000,000 paid to the French and the $10,000,000 paid to the republic of Colombia, will amount to at leaest $300,000,000. It was stated that the work on the canal is progressing better than had been expected in view of the great difficulties occasioned by the wet season in the tropics.

SHANGHAIING ON CHESAPEAKE BAY.

That certain oyster dredgers on Chesapeake Bay were in the habit of shanghaiing men to work on their vessels has long been a matter of repute, and now that this has been extended so far as to have included the taking of enlisted men of the United States navy against their wills, officials of the navy department have decided to break up the practice if possible.

It was developed during a recent trial by court-martial of a naval apprentice, attached to the receiving ship Franklin at the Norfolk navy yard, for being absent without leave, that he was drugged while on shore leave and kept aboard an oyster dredger for three months. He escaped and returned to his ship and a revenue cutter was sent after the dredger, arresting her master, who has been held to the grand jury at Baltimore.

IRON ORE RESERVES.

Mr. Bennet H. Brough recently read a paper before the British Association at Leicester on the subject of the world's iron ore supplies. He bases his available supply upon calculations made by Tornebohm for the Swedish parliament. The figures are largely conjecture and are decidedly so for the United States. Tornebohm estimates the amount of ore still available in the United States as 1,100,000,000, against 2,200,000,000 tons for Germany, 1,200,000,000 for Sweden, 1,000,000,000 for Great Britain, and 500,000,000 for Spain. The United States Steel Corporation two years ago estimated its reserve in the Lake Superior country to be 1,000,000,000 tons. Since that time it has acquired the Chemung property, estimated to contain 250,000,000 tons, and the Hill properties, which are variously given as containing from 500,000,000 to 600,000,000 tons. This is by no means all, as independent interests have roughly about 300,000,000 tons in reserve. In addition to this should be added the low grade ores of the Birmingham district, which are estimated at 1,000,000,000,000 tons. The known reserves of the United States are probably greater than those of any other nation.

WORLD'S SHIP BUILDING DURING 1907

The world's output of ships in 1907 was 3,330 vessels representing a tonnage of 3,220,399 tons against 2,941 vessels with a tonnage of 3,323,250 tons built in 1906. The American Ship Building Co. of Cleveland again heads the list in output of tonnage, having built 34 vessels of 191,602 tons. The next shipyard in point of tonnage is that of Wm. Doxford & Sons, Sunderland, Eng., who built 22 vessels of 91,254 tons. The Britishers do not think it fair to contrast the seven yards of the American Ship Building Co. with the single yard of Wm. Doxford & Sons. That is one way of looking at it, of course, but the American Ship Building Co. is nevertheless a single company and must in reckoning output of tonnage be given the first place among the world's producers. The following is the order of the first nine firms in output of tonnage during 1907:

	Vessels.	Tons.
American Ship Building Co..	34	191,602
Wm. Doxford & Sons.....	22	91,254
Swan, Hunter & Wigham Richardson	19	75,818
Harland & Wolff	8	74,115
Russell & Company.....	14	71,705
Workman, Clark & Co.....	24	63,245
The Great Lakes Works.....	10	58,051
The Bremer Vulcan Works....	11	49,431
The Fairfield Company	6	48,027

The United Kingdom is, of course, far and away the leader in tonnage production, having produced 1,571 ships of 1,724,921 tons during the year. To these figures should be added the output of the colonies numbering 193 vessels of 33,680 tons, making a total output for the British empire of 1,764 vessels of 1,758,601 tons. The United States ranks next with 189 vessels of 488,340 tons. Germany built 513 vessels but with few exceptions they were small ships as the aggregate tonnage is only 315,548 tons. The world's output by nations was as follows:

	No.	1907. B. of T. Tons.
Great Britain and Ireland...	1,571	1,724,921*
The Colonies and Dependencies	193	Tons. 33,680
Total of British Empire.....	1,764	1,758,601
FOREIGN COUNTRIES.		
United States	189	488,340
Germany	513	315,584
France	51	113,345
Belgium	42	17,630
Holland	344	152,371
Denmark	39	24,488
Norway	75	51,523
Sweden	34	15,646
Spain	4	4,341
Italy	26	86,370
Austria-Hungary	48	41,960
Greece	1	150
Russia	13	20,700
Japan	157	126,068
China	30	4,282
Total of foreign countries..	1,566	1,462,798
The World's Output.....	3,330	3,221,399

*51,800 tons warship displacement.

During 1906 the world's output of ships was 2,941 ships of 3,323,250 tons of which 1,576 vessels of 1,949,814 tons were built in the British empire and 220 vessels of 542,730 tons were built in the United States.

Accompanying this article will be found the output of the shipyards of the United Kingdom in 1907 arranged in order of tonnage with comparative data for 1906.

PRODUCTION IN 1907 OF EACH SHIP BUILDING FIRM IN THE UNITED KINGDOM, WITH COMPARATIVE FIGURES FOR PREVIOUS YEARS.

No.	Name of Firm—	—1907— No.	Tons.	—1906— No.	Tons.	Largest Year.	Total Since 1900. Tons.
1	Wm. Doxford & Sons, Ltd., Sunderland	22	91,254	25	106,058	1906	106,058
2	Swan, Hunter & Wigham-Richardson, Ltd., Wallsend-on-Tyne	19	80,573	25	118,039	1906	118,039
3	Harland & Wolff, Ltd., Belfast	9	75,015	11	83,238	1903	110,463
4	Sir W. G. Armstrong, Whitworth & Co., Ltd., Newcastle	12	74,228	15	36,814	1902	52,039
5	Russell & Co., Port Glasgow	14	71,705	14	63,328	1904	73,689
6	Workman, Clark & Co., Ltd., Belfast	24	63,245	13	65,478	1902	75,932
7	The Northumberland Co., Ltd., Howden.	10	48,250	11	46,151	1907	48,250
8	J. L. Thompson & Sons., Ltd., Sunderland	12	48,218	6	44,560	1907	48,218
9	Fairfield Ship Building & Engineering Co., Ltd., Govan	6	48,020	5	20,063	1907	48,020
10	Barclay, Curle & Co., Ltd., Whiteinch	6	47,332	6	33,608	1907	47,332
11	Wm. Hamilton & Co., Ltd., Port Glasgow	10	44,305	9	35,369	1907	44,305
12	Alex. Stephen & Sons, Ltd., Linthouse	7	44,003	6	22,981	1907	44,003
13	Wm. Gray & Co., Ltd., West Hartlepool	13	47,910	24	85,111	1906	85,111
14	Charles Connell & Co., Ltd., Scotstoun	9	40,298	7	31,105	1902	41,052
15	Sir James Laing & Sons, Ltd., Sunderland	8	36,018	8	38,055	1901	39,200
16	D. & W. Henderson & Co., Ltd., Glasgow	17	35,886	6	33,187	1902	39,849
17	John Brown & Co., Ltd., Clydebank	7	35,392	7	46,387	1903	55,152
18	Wm. Denny & Bros., Dumbarton	..	34,418	..	40,632	1906	40,632
19	Furness, Withy & Co., Ltd., Hartlepool	9	36,608	11	46,443	1906	46,443
20	R. Stephenson & Co., Ltd., Hebburn	8	30,144	12	39,131	1906	39,131
21	Sir R. Dixon & Co., Ltd., Middlesbrough	10	28,380	8	26,610	1907	28,380
22	Ropner & Son, Stockton-on-Tees	9	32,127	11	35,890	1906	35,890
23	R. Craggs & Sons, Ltd., Middlesbrough	8	34,247	8	28,314	1907	34,247
24	Richardson, Duck & Co., Stockton-on-Tees	13	27,801	7	28,675	1906	28,675
25	John Readhead & Sons, South Shields	7	26,139	8	30,205	1906	30,205
26	Short Bros., Ltd., Sunderland	6	24,656	6	25,393	1903	30,558
27	A. Rodger & Co., Port Glasgow	8	22,674	8	19,894	1905	26,734
28	Greenock & Grangemouth Co., Greenock and Grangemouth	13	22,253	10	28,460	1906	28,460
29	Archibald McMillan & Son, Ltd., Dumbarton	8	21,918	8	23,276	1907	21,908
30	Scott's Ship Building & Engineering Co., Ltd., Greenock	10	20,916	11	33,179	1906	33,179
31	Irvine's Co., Ltd., West Hartlepool	7	25,520	9	32,131	1906	32,131
32	R. & W. Hawthorn, Leslie & Co., Ltd., Newcastle-on-Tyne	8	20,275	8	32,650	1906	32,650
33	Napier & Miller, Ltd., Old Kilpatrick	7	19,785	3	10,740	1907	19,785
34	Palmer's Co., Ltd., Jarrow	7	19,111	7	36,190	1901	51,291
35	Craig, Taylor & Co., Ltd., Stockton-on-Tees	9	18,880	7	28,571	1901	40,244
36	Bartram & Sons, Sunderland	5	16,779	5	18,465	1904	20,715
37	Wm. Beardmore & Co., Ltd., Dalmuir	3	14,500	2	21,050	1906	21,050
38	John Blumer & Co., Sunderland	5	14,063	7	18,387	1906	18,387
39	Wood, Skinner & Co., Ltd., Newcastle	9	13,915	9	11,103	1907	13,915
40	Earle's Ship Building & Engineering Co., Ltd., Hull	22	13,858	15	14,288	1905	16,436
41	Osbourne, Graham & Co., Sunderland	6	11,437	6	10,806	1907	11,437
42	J. Priestman & Co., Sunderland	3	14,813	6	15,403	1905	21,009
43	Tyne Iron Ship Building Co., Ltd., Willington Quay-on-Tyne	5	11,314	5	17,340	1904	18,603
44	S. P. Austin & Son, Ltd., Sunderland	7	11,161	4	8,370	1901	11,189
45	Clyde Ship Building & Engineering Co., Ltd., Port Glasgow	6	10,981	5	11,096	1905	11,308
46	Ailsa Ship Building Co., Ltd., Troon and Ayr	22	10,778	32	9,368	1907	10,778
47	William Dobson & Co., Newcastle	4	10,108	7	24,811	1906	24,811
48	R. Thompson & Sons, Ltd., Sunderland	6	9,666	4	13,079	1901	16,785
49	Fleming & Ferguson, Ltd., Paisley	16	8,400	8	7,360	1906	7,360
50	Smith's Dock Co., Ltd., North Shields	36	7,961	28	7,743	1907	7,961
51	Caledonian Ship Building & Engineering Co., Ltd., Dundee	11	7,942	7	12,570	1906	12,570
52	Blyth Ship Building Co.	7	7,834	8	8,496	1905	11,808
53	Sunderland Co., Ltd.	3	7,650	8	19,241	1902	19,465
54	C. H. Walker & Co., Ltd., Chepstow	67	7,529	5	823	....	.....
55	Murdoch & Murray, Port Glasgow	7	6,850	7	2,559	1907	6,850
56	Cook, Welton & Gemmell, Beverley	28	6,712	35	7,355	1902	8,366
57	Caird & Co., Ltd., Greenock	1	6,437	4	26,778	1906	26,778
58	W. Simons & Co., Ltd., Renfrew	13	6,330	11	6,350	1901	8,650
59	Gourlay Bros. & Co., Dundee	2	6,276	7	12,639	1906	12,639
60	R. Duncan & Co., Ltd., Port Glasgow	2	5,981	3	10,710	1902	15,613
61	Lobnitz & Co., Ltd., Renfrew	27	5,772	11	4,539	1907	5,772
62	W. Pickersgill & Sons, Sunderland	3	5,678	5	19,970	1905	23,950
63	Cammell, Laird & Co., Ltd., Birkenhead	6	5,591	8	8,541	1901	16,042
64	London & Glasgow Co., Ltd., Govan	1	5,580	3	13,154	1901	16,995
65	Ramage & Ferguson, Ltd., Leith	6	5,545	5	3,788	1907	5,545
66	Cochrane & Sons, Selby	31	5,518	33	7,940	1906	7,940
67	John Crown & Sons, Ltd., Sunderland	5	5,274	4	5,638	1906	5,638
68	Vickers Sons & Maxim, Ltd., Barrow	..	4,882	..	26,770	1903	42,912
69	Mackay Bros., Alloa, N. B.	4	4,607	2	1,867	....	.....
70	Ferguson Bros., Port Glasgow	6	4,468	5	3,020	1907	4,468
71	Hall, Russell & Co., Ltd., Aberdeen	28	4,416	24	4,678	1902	8,865
72	A. W. Robertson & Co., Canning Town, London	21	4,074	26	4,229	1906	4,229
73	John Duthie Torry Co., Aberdeen	21	3,783	12	2,316	1907	3,783
74	Mackie & Thomson, Govan	26	3,663	19	7,920	1906	7,920
75	Goole Ship Building & Repairing Co., Goole	14	3,594	12	3,477	1907	3,594

No.	Name of Firm—	—1907— No.	Tons.	—1906— No.	Tons.	Largest Since 1900. Year.	Total Tons.
76	A. & J. Inglis, Ltd., Glasgow	2	3,503	6	2,755	1901	12,204
77	W. Harkness & Son, Ltd., Middlesbrough	5	3,372	3	3,572	1901	6,007
78	Dundee Ship Building Co., Ltd., Dundee	23	3,313	6	2,582	1907	3,313
79	Scott of Kinghorn, Ltd., Kinghorn, N. B.	4	3,279	..	3,318	1903	5,237
80	Bow, McLachlan & Co., Ltd., Paisley	17	3,217	19	5,659	1906	5,659
81	George Brown & Co., Greenock	11	3,186	7	1,155	1907	3,186
82	John Fullerton & Co., Paisley	8	3,011	5	1,687	1907	3,011
83	Mechan & Sons, Ltd., Scotstoun, Glasgow	86	3,011	..	.....	....	.....
84	Dee Ship Building Co., Ltd., Queen's Ferry, Flints	26	2,895	11	925	1907	2,895
85	J. I. Thornycroft & Co., Ltd., Chiswick and Southampton	19	2,851	11	2,056	1905	4,335
86	Alley & Maclellan, Ltd., Polmadie, Glasgow	27	2,704	12	1,382	1902	3,197
87	G. Rennie & Co., Greenwich	20	2,503	32	3,855	1906	3,855
88	Campbeltown Ship Building Co., Campbeltown, N. B.	2	2,483	3	3,802	1905	5,490
89	Scott & Sons, Bowling, N. B.	8	2,436	13	2,891	1904	2,909
90	J. S. White & Co., Ltd., East Cowes	12	2,260	32	1,941	1907	2,260
91	David J. Dunlop & Co., Port Glasgow	2	2,000	5	6,884	1902	8,670
92	H. Reynolds, Lowestoft	24	1,894	20	1,020	....	.....
93	Ritchie, Graham & Milne, Whiteinch, N.B.	18	1,885	26	3,489	1904	3,566
94	Alexander Hall & Co., Ltd., Aberdeen	11	1,860	9	1,643	1907	1,860
95	Yarrow & Co., Ltd., London and Glasgow	16	1,832	18	951	1905	2,483
96	John Chambers, Lowestoft	25	1,801	20	1,412	1907	1,801
97	Garston Graving Dock & Ship Building Co., Ltd., Garston	2	1,608	..	.....	....	.....
98	Lytham Ship Building Co., Lytham	14	1,327	16	2,065	1906	2,065
99	John Duthie, Sons & Co., Ltd., Aberdeen	7	900	10	2,282	....	.....
100	Joseph Scarr & Son, Beverley & Howden	8	1,511	17	1,946	1901	3,300
101	W. H. Warren, New Holland	7	1,500	11	1,200	1907	1,500
102	J. T. Eltringham & Co., South Shields	6	1,455	6	1,571	1902	1,770
103	T. Dobson & Co., Hessle, Hull	8	1,408	6	1,770	1903	1,996
104	J. P. Rennoldson & Sons, South Shields	6	1,364	6	1,126	1901	2,609
105	R. Williamson & Sons, Workington	2	1,089	..	1,999	1906	1,999
106	Dublin Dockyard Co., Dublin	4	962	3	1,024	1905	1,046
107	H. Scarr & Son, Hessle	6	945	10	1,170	1902	1,400
108	Ardrossan Co., Ltd., Ardrossan, N. B.	7	873	7	1,060	1902	2,167
109	Philip & Son, Ltd., Dartmouth	20	850	10	865	1906	865
110	Forrestt & Co., Ltd., Wyvenhoe	26	819	31	849	1906	849
111	Montrose Ship Building Co., Montrose, N. B.	7	805	5	2,049	1904	3,100
112	W. J. Yarwood, Northwich	11	800	13	1,337	1906	1,337
113	Edwards & Co., Ltd., London	12	793	13	1,875	1906	1,875
114	Hepple & Co., South Shields	5	737	4	711	1907	737
115	Beeching Bros., Great Yarmouth	8	730	7	481	1907	730
116	John Shearer & Sons, Ltd., Yoker	2	662	1	660	1904	1,676
117	F. Braby & Co., Ltd., Deptford, S. E.	15	636	6	390	1907	636
118	John Cran & Co., Leith	6	622	3	418	1907	579
119	R. & H. Green, Blackwell Yard, London, E.	7	573	2	320	1905	658
120	Fellows & Co., Ltd., Great Yarmouth	10	570	6	417	1907	570
121	I. Miller, Anstruther & St. Monance	6	520	4	150	1902	600
122	William Walker, Maryport	2	519	1	260	1905	1,165
123	Wm. Chalmers & Co., Rutherglen	8	457	6	762	....	.....
124	Cox & Co., Falmouth	7	450	5	459	1906	459
125	Isaac Pimblott & Sons, Northwich	23	417	16	319	1907	417
126	P. MacGregor & Sons, Kirkintilloch, N. B.	7	382	5	300	1903	435
127	Crabtree & Co., Great Yarmouth	4	352	2	180	....	320
128	G. Innes & Son, Portnockie	4	320	..	.....	....	.....
129	Thames Iron Works Co., London	2	308	31	1,470	1906	1,470
130	W. Fife & Son, Fairlie	10	297	6	277	1907	290
131	Simpson, Strickland & Co., Ltd., Dartmouth	33	266	19	193	1907	266
132	G. & T. Smith, Ltd., Rye	5	297	5	261	1907	297
133	James Weatherhead, Eyemouth	5	247	..	.....	....	.....
134	Larne Co., Larne	2	220	..	.....	....	.....
135	Hawthorns & Co., Ltd., Leith	2	214	8	1,326	....	.....
136	Mordey, Carney & Co., Ltd., Newport, Mon.	1	203	2	170	1907	203
137	Edward Hayes, Stony Stratford	6	200	6	174	....	.....
138	Camper & Nicolsons, Gosport	3	200	4	120	1907	200
139	D. M. Cumming, Blackhill, Camlachie, Glasgow	4	192	7	604	1901	620
140	H. S. Hansen & Co., Southampton	..	...	7	173	....	.....
141	John Reid & Co., Ltd., Whiteinch	1	100	10	7,664	....	.....
142	R. McAllister & Son, Dumbarton, N. B.	5	94	2	19	....	190
143	H. Shrubsall, East Greenwich	1	76	1	69	1905	164
144	J. & J. Hay, Kirkintilloch, N. B.	1	69	..	.....	....	.....
145	T. Sumner & Sons, Liverpool	4	60	2	82	1905	100
146	Nicholson & Sons, Glasson Dock, Lancaster	1	51	..	.....	....	.....
147	G. Napier & Sons, Ltd., Southampton	1	20	1	15	1905	152

COURSE CORRECTOR.

Editor MARINE REVIEW:—I think the Course and Bearing Corrector is easily far ahead of any other mechanical device that has ever been gotten up for the purpose of applying the corrections for Var. and Dev.

Of course, to one who thoroughly understands the rules and the reasons for them and who is practicing it almost daily, the application of these corrections seems a simple matter and, as a matter of fact, is a simple proposition. But I find from experience that it is quite an elusive, baffling and confusing proposition for the mind of the beginner to grasp. But with your Corrector the whole matter together with the "Whys and Wherefores"—which, in reality, is the most important part—can be made perfectly clear to almost anyone in a very few minutes.

Then again, the tendency to make blunders, even among the "old heads," is an element that we are forced into taking into consideration. The somewhat confusing repetition and partial similarity in the terms that we have to make use of in naming the directions on the compass, are constant sources of blunders ('twould hardly do to call them errors or mistakes) even among the old timers. But by using your Corrector, this cause of blunders is entirely eliminated.

Of course I don't advocate relying entirely on the Corrector for making the corrections for Var. and Dev.; as I think we should all be able to work it out in our minds instantly without having to leave the deck; nor do I think there's the least danger of our becoming "addicted to the habit" of relying for a solution of these problems on the Corrector; for it (the Corrector) makes the principles of the operation so plain and clear to our minds that, after using it a short time, we work the problems mentally quite readily. If there is any danger in, or objection to, using the Corrector, it may be found right here, especially in the case of a new beginner; for the instrument will have made the operation seem so simple to him that he may become over-confident and neglect to check his work up by comparing it with the result obtained by using the Corrector and thus allow some of the blunders spoken of, to slip in. The nature of our work is such that, in a great many instances, we've only got one guess, and we can't afford to omit anything that will tend to make that guess as near correct as possible.

I certainly think that the Corrector should be included in the equipment of every steamboat, and I can't see how any pilot can afford to be without one; and I don't hesitate in saying that, in my opinion, this comparatively cheap little instrument will do more toward the advancement of scientific lake navigation than any one thing that has been introduced into that study, simplifying, as it must, to the mind of the prospective student, that apparently puzzling and mystifying question of how to apply the values of Var. and Dev.

Hoping that this very useful and inexpensive little instrument may receive the patronage which I feel it richly deserves, and assuring you of my cheerful willingness to assist you in any way I can in effecting sales or creating a demand for it, I have the pleasure of remaining,

FRED BENSON.

Duluth, Minn.

ITEMS OF GENERAL INTEREST.

The White Star liner Suevic has recently completed repairs, including the addition of a new bow to replace that part of the ship left on the rocks when she stranded off the Lizard some months ago, and sailed from Liverpool for Australia on Jan. 18.

The men in the Clyde ship yards, who were threatening to strike, have averted a stoppage by accepting 5 per cent reduction on piece work, which is to take effect on Jan. 22. The employers also have made a concession in postponing a reduction until this date, instead of enforcing it immediately, as they at first intended. They also forego a claim for a farthing per hour reduction on time rates. The Boilermakers' society has also agreed with the adversary by accepting 5 per cent reduction and 1s 6d on time rates, which means that in the Newcastle district a stoppage will be avoided. The settlements are quite in accordance with new ideas, which demand that every alternative should be tried before actual hostilities are resorted to.

At the national convention of the Marine Engineers' Beneficial Association which is being held in Washington this week, Wm. F. Yates, of New York, was elected president, A. L. Jones, of Detroit, secretary and John Henry, of Saginaw, treasurer. A. L. Jones, who was formerly treasurer, succeeds G. A. Grubb, of Chicago, as national secretary.

The reports of the recent test of the coal briquettes made at the government's new fuel testing plant at Norfolk, which were used on board the flagship Connecticut on her run from New York to Hampton Roads before her departure for the Pacific, have been received at Washington, and they are said to be far from satisfactory and not conclusive as to the value of the process of briquetting.

The sub-committee on deficiencies of the house committee on appropriations has made an important decision in recommending the immediate appropriation of $1,000,000 to pay the coal bill incident upon the voyage of the battleship fleet to Pacific waters, and also of the $12,000,000 asked for by Secretary of War Taft and Chairman Goethals, of the Isthmian canal commission, in order to carry on until the close of the current fiscal year the canal-digging work as mapped out by Col. Goethals.

The lightship No. 88, Blunt's Reef, is making ready for her long journey of 15,000 miles, from New York to the Pacific coast, through Magellan straits, under her own steam. The ship also has two masts and carries a square foresail, which is expected to help in her progress materially. She will make eight stops on the trip—San Juan, Barbados, Bahai, Montevideo, Punta Arenas, Coronel, Callao and San Francisco. It is expected that she will reach her station off the Columbia river in 110 days.

It is probable that the chief of the bureau of construction and repair of the navy department, Washington Lee Capps, who is to appear before the house committee on naval affairs shortly in connection with the naval appropriation bill, will at the same time be questioned regarding the charges that American battleships are antiquated, which has been made by Henry Reuterdahl, who is considered somewhat of an expert on naval construction, and who has written an article in which he makes that charge concerning the battleships of our navy.

The Lake Submarine Boat Co., Bridgeport, Conn., has finally acceded to the proposition of Secretary of the Navy Metcalf, and will build a boat at its own expense, to be paid for if accepted out of the fund of $778,000 reserved from the $3,000,000 appropriation for the purchase of submarines for the navy. The Lake company has offered to build either a 500-ton or a 300-ton boat and it is believed that one of 500 tons, of 16 knots speed and a 2,000-mile steaming radius, costing $50,000, will be recommended by the board of construction.

Representative Hobson introduced a bill in the house on Jan. 15 which is known as a bill "To provide a navy adequate for national defense." It appropriates $50,000,000 annually for the purpose of constructing new battleships, the number and features of the vessels to be determined by the president under expert advice. It also authorizes the president, whenever in his judgment the national security and defense requires it, to order or purchase at home or abroad, vessels or other war materials, the total cost of which shall not exceed $50,000,000 in any one year, without further authorization.

The Marine Society of New York City, an aggregation of old-time masters of vessels and deep-sea veterans, held its 138th annual meeting and dinner in that city recently. It is one of the oldest organizations in the city but the reports of its officers show it to be in a flourishing condition. The officers for the ensuing year, who were unanimously elected, are as follows: President, Capt. A. W. Smith; first vice president, Capt. H. M. Randall; second vice president, Capt. Joseph Ware; treasurer, Capt. J. H. Chamberlain; counsel, Adrian H. Joline. The business meeting was followed by the dinner, which was presided over by President Smith, and was attended by several distinguished guests.

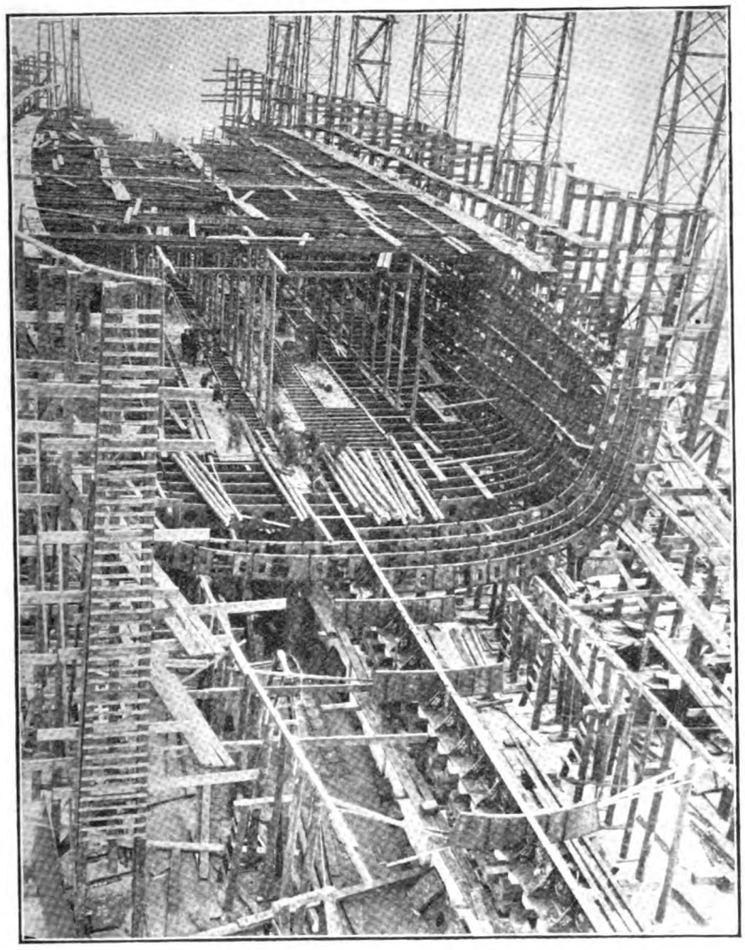
In deference to a demand by its maritime provinces the government of the Dominion of Canada has just promulgated a most important order which marks the time when Canada is able to handle its own shipping. The new order, which will take effect Jan. 1, 1909, provides that no goods or passengers shall be carried by water from any point of Canada to another except in British ships. This cancels the orders in council which admitted vessels of Italy, Denmark, Germany, the Netherlands, Sweden, Norway, Austria-Hungary, Belgium and the Argentine Republic, to the coasting trade on the same terms as those applied to Canadian vessels.

New moving picture films are soon to take the place of those which have been so successfully used to arouse interest and which greatly increased enlistments in the navy during the past year. The new views will show the president receiving the officers of the battleship fleet and the departure of the fleet from Hampton Roads together with some fine pictures of the ships at target practice at Cape Cod Bay and also maneuvers at sea. There are over 7,000 ft. of films in the scenes that accompany the recruiting lecture which is delivered by John R. Cox, who is employed for this purpose. This lecture has been heard by thousands and proves most interesting to the class of men who are desired for the navy.

Rear-Admiral W. S. Cowles, chief of the bureau of equipment of the navy department, appeared Jan. 15 before the house committee on naval affairs to explain the purchases of coal made for the battleship fleet for its supply on the Pacific cruise. In explanation, Admiral Cowles said that the offer which was made by the authority of President Roosevelt for 50 per cent advance for American vessels to carry this coal brought out no bidders. The Virginia was the only American vessel to carry coal for the fleet, and she was merely seeking cargo to carry to the Pacific where she is to enter the Hawaiian trade. Altogether 170,000 tons of coal were bought and shipped and it is estimated that the coal bills of the navy during the coming year will be $1,000,000 in excess of those of last year because of the larger number of vessels in commission and the excess in transportation charges to the Pacific coast.

BATTLESHIP NORTH DAKOTA.

Herewith are published two photographs showing the battleship North Dakota as taken on Jan. 20 at the yard of the Fore River Ship Building Co., Quincy, Mass. The work during the week consisted of the erection of a number of additional frames, additional plating of inner bottom, protective deck and shell. Riveting on the work erected has also proceeded rapidly and a great deal of work has been prepared in the shops ready for erection. Bulkheads are being riveted on the ground and when completed will be hoisted in place in one piece.



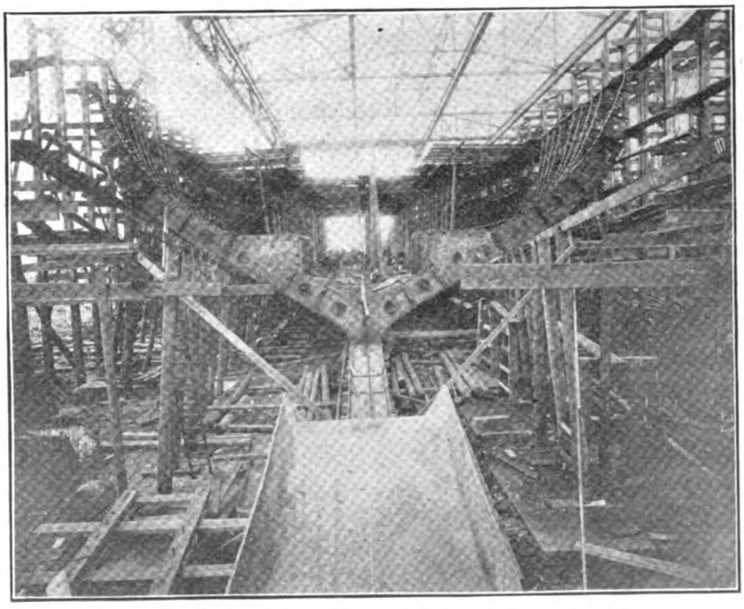
BATTLESHIP NORTH DAKOTA, PHOTO TAKEN ON JAN. 20.

TWO SNAG BOATS.

The two snag boats Ransdell and Humphreys, which are being built at the yards of E. J. Howard, Jeffersonville, Ind., for Capt. Clark S. Smith, government engineer, Vicksburg, Miss., are nearing completion and will probably be ready for trial within the next two months. These boats are combination snag and dredge boats with an iron and steel hull, 137 ft. long, 32 ft. beam and 5 ft. deep amidship. The skin plates of the hull are of iron; all other plates and structural material of the hull are of steel. The hull is divided into twenty-one watertight compartments by fore and aft and athwartship bulkheads. Each boat has a main engine of 12 in. cylinder, 6 ft. stroke, and is provided with boilers 14 ft. in diameter and 22 ft. long; also steel shears 30 ft. high and steel derrick with 40-ft. boom. The dredging apparatus consists of an orange-peel bucket of 1 cu. yd. capacity. One of the boats is to be used on the Ouachita river and the other on the Yazoo river.

HYDRAULIC DREDGE.

Lieut. Col. S. W. Roessler, United States engineer with headquarters at Portland, Ore., opened bids recently for constructing an 18 in. hydraulic dredge for use on the coast of Oregon and Washington. The bidders were John Wood Iron Works Co., Portland, Ore., at $85,000; the North American Dredging Co., San Francisco, Cal., at $94,700; the Portland Iron Works, Portland, Ore., at $78,240; the Willamette Iron & Steel Works at Portland, Ore., at $82,865; the Moran Co., Seattle, Wash., at $95,297. The contract was awarded to the Portland Iron Works, Portland, Ore., the firm to furnish four steel tanks for $1,100 additional. The dredge is to be completed within eight months. The dredge will be 120 ft. long over all, 30 ft. wide and 11 ft. deep. The dredge is to be equipped with a compound engine 16 and 28 in. cylinder diameters by 18 in. stroke, supplied with steam from two water-tube boilers, allowed 150 lbs. pressure. The dredge is to be fitted with a centrifugal pump of large capacity and is to have all modern accessories including an electric lighting plant.



BATTLESHIP NORTH DAKOTA, PHOTO TAKEN ON JAN. 20.

THE MARINE REVIEW

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January 30, 1908.

The MARINE REVIEW would be pleased to receive from vessel masters and vessel owners expressions of opinion on the subject of center ranges. Discussion is invited because, whether the ranges are abolished or not, some good will result from it. If it will do nothing else it will probably minimize the abuse of the center ranges. Line masters and owners are especially invited to contribute their opinions as it is a common remark among the masters of bulk freighters that they would rather meet six bulk freighters on the ranges than one line boat, owing to the practice of the line boats of getting the range and keeping it while traveling at high speed.

OCEAN MAIL BILL.

The senate committee on commerce has taken up the bill to extend the provisions of the ocean mail act of 1891 to embrace vessels of the second class, which means the extension of the postal service of the United States to quarters not now reached. All of the Republican members of the committee are believed to be in favor of the measure and it is expected that it will be reported to the house during the present week. In the house the ocean mail act, which was introduced by Representative Humphrey, of Washington, and referred to the committee on post offices and post roads, is being considered by a special ocean mail sub-committee, the chairman of which is Senator Gobel, of Cincinnati. This committee has had statements from Representative Humphrey, Assistant Postmaster General McCleary, Commissioner Eugene Tyler Chamberlain, of the bureau of navigation, and others. This post office committee, of the house, has not been called upon to consider ocean mail legislation since 1891 and all of the members of the committee are, therefore, desirous of learning whatever they can about the subject. There is every reason to believe that this bill will be passed by congress during the present session. There is no sound reason why the bill should not be passed. It does not provide in any sense of the word for a subsidy.

WORK AT THE SAULT.

There is reasonable hope now that actual work upon the widening of the canal and the construction of the third lock at Sault Ste. Marie will begin during the present summer. A quitclaim deed to the ownership of land in the rapids from the Chandler-Dunbar Co., a private power company, has finally been drawn to the satisfaction of the attorney general of the United States, who has hitherto succeeded in finding minor flaws in whatever deed was submitted. The new deed contains no new provision, the difference lying in the wording of certain items. This new order of things has been brought about by Mr. Chandler, of the Chandler-Dunbar Co., talking things over personally with Attorney General Bonaparte. As soon as the formal announcement of the acceptance of the deed is received bids will be solicited for the work, the specifications for widening the canal having been brought up to date.

In an interview with General Alexander Mackenzie, chief of engineers, it developed that there is a disposition to have Col. Charles E. L. B. Davis take charge of the work or at least to have the formal commencement of operation under his administration as a recognition of his unceasing efforts to get this improvement under way. This is no more than proper.

GEN. CHARLES E. L. B. DAVIS.

The announcement that Col. Charles E. L. B. Davis, government engineer, with headquarters at Detroit, who is to retire on Feb. 16, has been promoted to the rank of brigadier general was received with pleasure by the vessel interests. That district, one of the most important on the lakes, embracing the restricted channels from the Limekilns to the canal at Sault Ste. Marie, has always been fortunate in the selection of its engineer. Col. Davis has proved himself a worthy successor to the late Gen. O. M. Poe and has developed the channels upon a most capacious line. He has been steadily building for the future and he has even been a little in advance of even the vessel interests—as witness his plan for straightening out the channel in the lower Detroit river. He will be well remembered by the vessel interests of the great lakes.

GRAND LODGE SHIPMASTERS' ASSOCIATION.

Th annual meeting of the Grand Lodge of the Shipmasters' Association is being held in Milwaukee this week. The meeting opened on Tuesday morning with an address by Mayor Becker, of Milwaukee, to which Capt. M. G. McIntosh, grand president, responded. During the afternoon Major W. V. Judson, government engineer, with headquarters at Milwaukee, addressed the grand lodge upon harbor improvements. The sessions will last until Friday of this week. Many important matters, regarding aids to navigation, will be discussed, the local lodges submitting various recommendations. Among others, the following resolution, adopted by the Cleveland lodge, relating to inspection laws, will be submitted for consideration:

"1. Whenever during the season of navigation changes are made in the rules and laws governing navigation, we should be notified either through the medium

of the hydrographic office bulletins or by special notice through the department of commerce and labor.

"2. The last part of rule IV of the general rules and regulations of the steamboat inspector service reads: 'At least one length of hose shall be kept at all times attached to each outlet of the fire main and provided with a suitable nozzle.'

"As most of our coarse freighters have no cabins or deckhouses amidships, we do not think it necessary to have the hose connected at all times through the midship section of the ship for the reason that in many cases it is a hindrance to both loading and unloading, besides being subjected to damage from falling ore, etc. We, therefore, ask that this part of the law be changed so that the hose may be kept attached to the amidship outlets of the fire mains at the option of the master or officer in charge.

"3. There seems to be a wide difference of opinion among local inspectors as to the exact interpretation to be placed upon some of the general rules prescribed by the board of supervising inspectors regarding the inspection and equipment of steam vessels. What satisfies one inspector does not satisfy another, and this difference is often the cause of much trouble. We ask that steps be taken to insure a uniform interpretation of these rules.

"4. There seems to be a wide difference of opinion among local inspectors as to the exact interpretation to be placed upon the rules in regard to 'preliminary investigations' to be held when an accident occurs within their district, and whether they had the right to suspend or revoke licenses or levy fines as a result of such preliminary investigations. We ask that in every case before any action is taken beyond the preliminary investigation, that charges be preferred, and the one under charges be given a chance to be heard and make such defense as he may desire.

"5. We understand that in one instance an inspector revoked the license of a pilot without giving him an opportunity to appear and testify either in person or by counsel in his behalf. In cases where charges of a serious nature are preferred against a master or pilot we believe he should be accorded the right of a trial by a jury composed of representative steamboat men actively engaged, as we consider that many of the local inspectors now holding office are not competent to pass judgment on these cases, and many licenses have been unjustly revoked or suspended."

The Grand Lodge elected the following officers: Grand President, M. G. McIntosh, Detroit; grand first vice president, M. S. Peterson, Buffalo; grand treasurer, A. J. McKay, Detroit; financial secretary, E. G. Ashley, Toledo. Appointments for the other officers were made by the president as follows: Grand second vice president, Edward Hendricks, Port Huron; marshal, A. J. Mahon, Detroit; chaplain, H. T. Kelley, Cleveland; warden, H. Brown, Marine City; sentinel, James Lyon, Toledo. The report of the grand treasurer showed that the association had handled over $25,000 during the year and had paid out $18,000 in death claims.

CLEVELAND-CLIFFS MASTERS.

Capt. J. M. Johnston, who has had a number of commands in the fleet of the Cleveland-Cliffs Iron Co., has been appointed fleet captain and will be ashore during the coming season. J. H. Sheadle has appointed the masters of the fleets managed in the Cleveland-Cliffs office to the following commands for the coming season:

THE CLEVELAND-CLIFFS IRON CO.

Steamer.	*Master.*
Wm. G. Mather	H. H. Parsons
J. H. Sheadle	S. A. Lyons
Michigan	T. E. Murray
Ishpeming	C. A. Anderson
Pontiac	R. A. Gaskin
Frontenac	F. D. Perew
Choctaw	P. A. Anderson
Andaste	J. A. Kennedy
Cadillac	H. A. Murphy
Pioneer	George Trimble
Falcon	W. T. Mooney
Schr. Chattanooga	M. J. Pidgeon
THE CLEVELAND-CLIFFS IRON CO., MANAGER FOR HOPKINS STEAMSHIP CO.	
Centurion	J. A. Stewart
THE CLEVELAND-CLIFFS IRON CO., MANAGER FOR PRESQUE ISLE TRANSPORTATION CO.	
Peter White	S. N. Murphy
Presque Isle	F. A. West
Angeline	C. R. Ney

GRAIN RECEIPTS AT BUFFALO.

The annual report of Junius S. Smith, lake weighmaster at Buffalo, shows that 132,787,000 bu. of grain and flax were carried into Buffalo last season on 1,016 raft, an average of 130,000 bu. per cargo. Following were the receipts:

	Bushels.	Tons.
Wheat	66,975,000	2,009,250
Corn	28,494,000	797,832
Oats	11,280,000	180,480
Rye	1,314,000	36,792
Barley	11,268,000	270,432
Flax seed	13,456,000	376,768
Total	132,787,000	3,671,554

CONTRACT FOR STEEL DRILL BOAT.

The Empire Ship Building Co., of Buffalo, N. Y., which makes a specialty of such work, has just been awarded a contract by the Buffalo Dredging Co. of the same city for the construction of a steel drill boat for service in the Detroit river. The boat will be 135 ft. over all, 32 ft. beam, and 6½ ft. deep. It will have five drill frames and the deck house will be of steel construction. Besides having a considerable amount of repair work, which will keep it working full time for several months, the company is also rebuilding the 80-ft. steel tug International, in service on the Niagara river, for the Grand Trunk railroad. A new pilot and deck house, new upper works and new boilers are being installed.

ANTI-CORROSIVE COATING.

The Pittsburg Steamship Co.'s steamer Harvard, which is lying at the American Ship Building Co.'s yard, just below the viaduct, Cleveland, is attracting the attention of vessel owners considerably these days. The steamer is covered from stem to stern, between her load and light line, with a mineral product, making, as it were, a sort of armor belt around about the whole ship. As the prevailing color of this fleet is an iron ore brown, vessel owners were wondering whether the Pittsburg Steamship Co. had decided to change the color of its fleet. The facts are, however, that the company has decided to demonstrate the properties of the Standard Oil Co.'s anti-corrosive ballast and tank coating for the outside of its steamers below the load line. The property of this anti-corrosive coating, which give it great value for this particular purpose, is that it never dries. It continually penetrates the pores of the iron, thus preventing rust and corrosion. Obviously there can be no rust where oil is present. After a trip or two the action of the water will remove the black stain of the oil, leaving the steel clean and free from rust, and ready to be painted any color desired. This is the first time that the outside of a lake steamer has been treated with anti-corrosive coating, though it is common practice on salt water. The lead of the Pittsburg Steamship Co. is likely to be followed, however, as it is understood that the material cost of treating the Harvard was less than $7. Of course, this oil has been used in the forepeaks, after peaks and ballast tanks of lake steamers for years as a rust preventative and recently several of the steamship lines that carry ore and coal exclusively have started to use it in the cargo hold.

The new steamer building for the Wilson Transit Co. at the Cleveland yard of the American Ship Building Co. will be named in honor of J. E. Upson who is president of the company. She will be launched in about a month and will be brought out by Capt. Joseph S. Wood.

Capt. Charles Christie of Erie, master of the Anchor liner, Wissahickon, was stricken with paralysis last week. His condition is precarious. He brought out the passenger steamer Juniata in 1905 and has held various important commands.

W. C. RICHARDSON & CO.

It was announced last week that Capt. W. C. Richardson had taken into partnership his associates in the office under the firm name of W. C. Richardson & Co. The firm will retain the old offices at No. 420-421 Perry-Payne building, Cleveland. This action on the part of Capt. Richardson has been most favorably commented upon as a signal mark of his appreciation for the loyalty of his associates who have been with him for many years.

The new members of the firm are W. E. Chapman, John T. Kelly, Tracey H. Paine and Clarence E. Richardson. Of these Mr. Chapman is the eldest both in years and point of service. He has been associated with Capt. Richardson for the past 15 years and for the last 10 has been the active manager of the boats. Mr. Kelly has been in the office for the past 14 years. Mr. Tracey H. Paine is a son-in-law of Capt. Richardson and was formerly chief of the Ashtabula fire department. He has received a thorough business training. Mr. Clarence E. Richardson is a nephew of Capt. Richardson, being a son of the late Chauncey Richardson, former collector of customs of Ashtabula. Clarence Richardson has been with Capt. Richardson for the past six years.

CAPT. W. C. RICHARDSON.

By this move Capt. Richardson shifts the burden of responsibility upon younger men though that is not saying that he is not abundantly able to assume the whole of it himself. There is no man in lake trade more active than Capt. Richardson or who takes a greater interest in his ships.

MR. W. E. CHAPMAN.

MR. TRACEY H. PAINE.

MR. CLARENCE E. RICHARDSON.

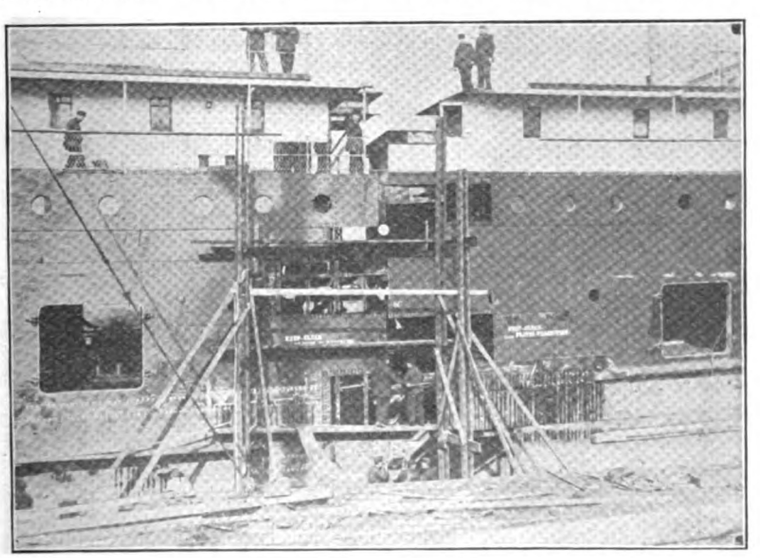
MR. JOHN T. KELLY.

JOINING THE KEEWATIN AND ASSINIBOIA.

A novel and interesting piece of work that attracted attention was the recent transfer through the Welland canal of the big steel freighters, Keewatin and Assiniboia, built in Scotland for the great lakes service of the Canadian Pacific Railroad Co. It will be remembered that in order to pass through the locks of the canal it was necessary to separate each of them into two sections at Quebec, so that they might be towed through to Buffalo and there again joined.

In the accompanying cuts the steamers are shown at the plant of the Buffalo Dry Dock Co., where this latter work was effected. A record accomplishment was made of it. But five and a quarter days were consumed in reuniting the two sections of the Keewatin and but six those of the Assiniboia. Extensive repairs to the bottom of the former had to be made, however, owing to the fact that she ran aground on Anti Costa Island at the mouth of the St. Lawrence, necessitating the removal of twenty-six shell plates and almost the entire center keelson, the whole being finally completed Dec. 22, she being accordingly the last vessel out of port at Buffalo in 1907.

The steamers, sister ships built by the Fairfield Ship & Engine Works, Glasgow, were brought across the Atlantic and up the St. Lawrence to Quebec, where they were cut in two in the government dry dock by G. T. Davies & Sons, after which they were towed through the Welland canal and to Buffalo under the supervision of Hugh Calderwood, superintendent of marine transportation of the C. P. R.

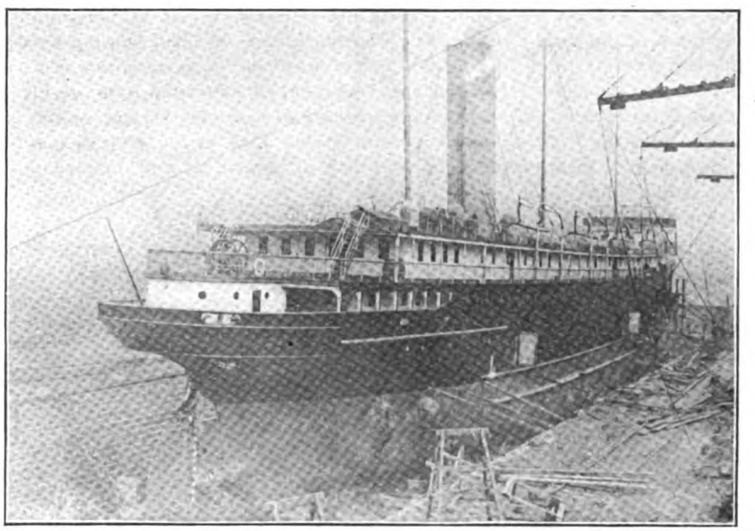


JOINING THE SECTIONS OF THE KEEWATIN.

The after portion of the Assiniboia was docked on fixed blocks in No. 1 dry dock of the Buffalo Dry Dock Co., after which the bow section was moved in on sliding ways prepared for that purpose, 13 ft. forward of the stern section. The dock was then pumped dry that night and next morning the bow section was cribbed up on its cradle. At 12:30 P. M. the same day the jacks were started and at 5:30 that afternoon the sections were joined, after which the riveting was done and the boat was floated out of the dry dock on Saturday of the same week, it having taken six days to complete the work.

The Keewatin followed in the same dock, requiring only five and a quarter days to reunite her. The repair job on this ship, already mentioned, took twenty-four days to complete.

Next season these vessels will be in service between Owen Sound and Port Arthur. They are laid up at Owen Sound for the winter.



THE ASSINIBOIA JOINED.

PIG IRON SITUATION.

More harmony among pig iron interests has been the development of the week, and following the meeting of furnace men of the middle west, it is announced that an effort will be made to hold prices firm on the basis of $17 valley for No. 2. Bessemer is held at $18 and basic at $16. Business moving is of very moderate proportions. In finished lines more activity is reported among the mills, but it is a noteworthy fact that of the recent price reductions only that of tin plate has produced any increase of trade volume. Prices of bar iron, light rails, cast iron pipe, shafting and spikes are sagging. The meeting of the leading iron and steel representatives in New York, Jan. 30, is expected to have a determining effect as to the future firmness of the market in the way of prices.

GALVESTON'S FOREIGN COMMERCE PROGRESS.

BY WALTER J. BALLARD.

The following bureau of statistics figures show Galveston's foreign commerce progress in the 10 months ended October of the years named.

Year.	Imported.	Exported.
1905	$5,044,556	$ 96,597,985
1906	4,156,903	120,088,123
1907	7,036,611	147,974,636

Increase in 1907, ten months, over 1906, ten months:

Imports	$ 1,992,055
Exports	51,376,751
Total increase	$53,368,806

FOR THE LAKE MARINE

In this department hereafter will be found everything of current interest pertaining to Lake Navigation. Masters are advised to consult it weekly for information of interest to them; and owners are invited to use it freely for the promulgation of all announcements of a general nature. The Marine Review will be placed aboard every vessel having membership in the Lake Carriers' Association, representing a registered tonnage of nearly 2,000,000 tons, and can, therefore, be depended upon as a reliable courier to the entire fleet. It will reach every vessel in active service weekly. It is the intention to make this department complete so that at the end of the year it will be an authentic record which should prove of permanent and increasing value to owners and masters alike.

STRAIGHENING THE CHANNEL IN LOWER DETROIT RIVER.

At the annual meeting of the Lake Carriers' Association Col. Charles E. L. B. Davis read a letter which he had just transmitted to Gen. Alexander Mackenzie, chief of engineers, recommending the straightening of the channel in the lower Detroit river. While the improvement is not a pressing one it is very desirable as it will greatly minimize the chances of accident. A chart, reproduced herewith, accompanied Col. Davis' letter, explaining the improvement. Following is the letter:

Detroit, Mich., Jan. 15, 1908.

Brig. Gen. A. Mackenzie,
Chief of Engineers, U. S. A.,
Washington, D. C.

General:

1. The channel of the Detroit river between the town of Wyandotte and Fighting island, though of good width, is somewhat crooked, necessitating passing vessels making five turns in passing this stretch of river less than five miles in length.

2. This portion of the channel has been the scene of numerous collisions. Last season on Oct. 13 at 2:30 in the morning the steamer Moore was wrecked by collision with the steamer Queen City and sunk about 4,000 ft. below the front light of the Grassy Island ranges, so that she lay on the Grassy Island range about 75 ft. west of the Mamajuda range, headed up stream. There was about 300 ft. on each side of her so vessels could pass, but had both vessels sunk there would have been a bad blockade.

3. A careful examination of the chart will show that this stretch of river can be greatly improved by straightening the channel as shown by the heavy straight lines on the accompanying tracing, giving a straight course five miles long, 800 ft. wide and 22 ft. deep at a Lake Erie stage of 571 ft. above mean tide at New York, by dredging off the shaded areas. The material to be removed is a silt composed of sand and clay and the cost, the unit price of which is based on the cost of similar work in the locality, is as follows:

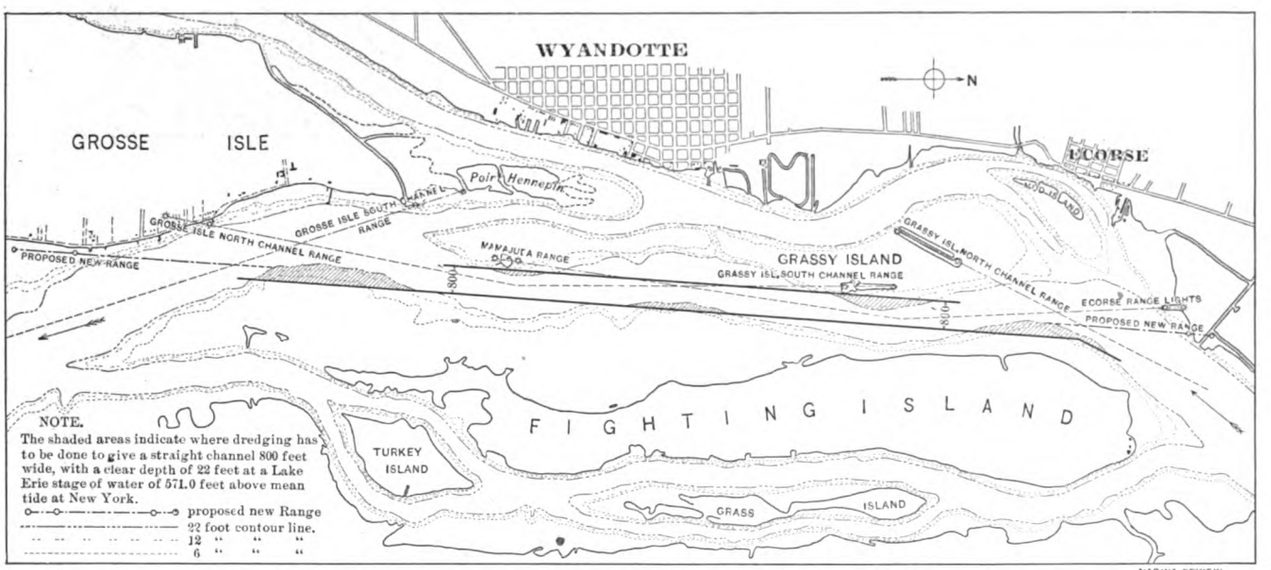
2,533,000 cu. yds. at 15 cents	$379,950.00
Plus about 10 per cent for contingencies	40,050.00
Total	$420,000.00

4. Coming down the river the present course is as follows:

Following the Grassy Island north channel range to the intersection with the Ecorse range, a turn is made to the left at the point marked A and a run made on the Ecorse range to the intersection with the Mamajuda range at B, a distance of 4,800 ft., then a turn to the right on the Mamajuda range to the intersection with the Grassy Island south channel range at point C, a distance of 6,700 ft., then a turn to the left on the Grassy Island south channel range to the intersection with the Grosse Isle south channel range at point E, a distance of 6,400 ft., then a turn to the left and down the river on the Grosse Isle south channel range. The reverse course is pursued by up-bound vessels. There are, therefore, five turns in all, made in a distance of 23,000 ft. In the plan proposed but two turns are made, at the head and foot of the long cut, at points A_1 and E_1, the Ecorse range lights and the Grosse Isle north channel ranges being both put on the same range through the center of the new channel to the eastward of their present positions as shown on the tracing, while the Grassy Island south channel range and the Mamajuda range lights may be discontinued.

5. The advantages of the new channel and the new arrangement of the lights are so obvious that I recommend that the proper steps be taken for securing the sanction of congress for this improvement.

Very respectfully,
Your obedient servant,
CHAS. E. L. B. DAVIS,
Colonel, Corps of Engineers, U. S. A.



MAP SHOWING PROPOSED IMPROVEMENT FOR STRAIGHTENING CHANNEL ABREAST OF FIGHTING ISLAND, DETROIT RIVER.

REPORT OF FLEET ENGINEERS.

The Association of Superintending Engineers, consisting of A. Arnold, James D. Mitchell, Thomas Durkin, C. J. Fox, Gilbert Patterson, Hugh Wilson, H. C. Jordan, Douglas Brews, E. Hull, Joseph F. Hayes, F. B. Smith, Wm. Fetting, Wm. Hill and Thomas Keating, spent a great deal of time in investigating and formulating its report to the Lake Carriers' Association. The report was submitted at the recent convention of the Lake Carriers, held in Detroit, and is a very comprehensive document as follows:

Mr. William Livingstone, Pres. Lake Carriers' Association:

The Association of Fleet Engineers in session in Detroit respectfully report to your honorable body of Lake Carriers' Association, that we have been discussing the general rules and regulations prescribed by the board of supervising inspectors, and governing the steamboat inspection service, and wish to recommend to you some changes in the inspection laws and rules that we think would be of benefit to steamboat owners on the great lakes, as follows:

> Rule 2, Section 20: "Hard brass, bronze, and other compositions of copper, tin and zinc, possessing a tensile strength of not less than 35,000 pounds to the square inch, may be used in the construction of all fittings up to and including 12 in. in diameter, and for all pressures not exceeding 300 lbs. per square inch, except that it will not be allowed where steam reaches a temperature of 500° F., and for all temperatures exceeding 550° F. no fittings other than steel shall be allowed."

We take exception to this rule for the reason that there is not a brass founder in the country that could make commercially brass or composition castings with a tensile strength of 35,000 lbs. to the square inch, and even if it could be done, that tensile strength would not be necessary in our practice. We think this rule should be changed to lower the tensile strength considerably, certainly to not more than 25,000 lbs. per square inch.

Again, in the case of superheated steam, the temperature might run about 550° F., and in such cases, the composition fitting would not be permitted. We wish to say in regard to this that there are not installed in some of our lake steamers fittings where the temperature exceeds 550° F., consequently it would be necessary to change this ruling, or else the owners of these vessels would have to change their fittings, which would certainly be a hardship at the present time.

> Again in Rule 2, Section 20, the ruling is: "All fittings of more than 2 in. in diameter shall be permanently flanged, and no fittings shall be of a greater length than specified by the 'Manufacturer's Standard.'"

We objet to this ruling on general principles. The fittings that have been in use on lake steamers for the last few years have been perfectly satisfactory in every way. They have given the best of service, and there has never been any trouble with them. In this ruling which requires all fittings, whether valves, elbows, tees or other fittings to be flanged, it seems that we have two joints instead of one. We have a flanged joint next to the fitting, and the screwed joint in the flange, while formerly we had simply the screwed joint in the fitting. We find in our practical experience that we have a great deal more trouble with leaky joints in piping where flanged joints are made than where screwed joints are. It also would put the owners of steamers to a good deal of extra expense to carry a stock of that class of fittings on their steamers, and also would compel them to dispense with all the fittings on their steamers, and also would compel them to dispense with all the fittings they have in stock at the present time, as they would not be allowed to be used in case of repairs.

> In Rule 2, Section 28, it reads: "On all boilers built after July 1, 1906, a bronze or brass seated stopcock or valve shall be attached to the boiler between all check valves and all steam and feed pipes and boilers, in order to facilitate access to connections.

We refer to this section for the reason that in at least one inspection district the inspector rules that the main feed line and the auxiliary feed line must go into the boilers through different holes, although each line may have an independent check valve and stopcock. There are quite a large number of steamers in commission on the lakes at the present time that have connections of this kind where the feed water from both the main and auxiliary feed lines go into the boiler through one hole, but having separate check valves and stopcocks, and unless we get an independent ruling on this that the section above referred to shall only apply to new construction, it will make us change our piping in a great many of our older steamers.

> Rule 4, Section 8: "Steamers required to be provided with double-acting steam fire pumps or other equivalents for throwing water, shall be equipped with such pumps according to their tonnage. Steamers of 3,000 gross tons and over shall have pump cylinder of not less than 1,000 cu. in. capacity. This rule shall only apply to pumps installed after June 30, 1907."

The exception to this rule is that the fire pumps installed on our steamers at the present time are fully competent to take care of at least two streams of water through an inch and a half hose, with standard nozzles, at a pressure of 100 lbs. to the square inch, which would be all the capacity necessary for any emergency, while the new ruling would compel us to install pumps with water cylinders 7 in. diameter by 14-in. stroke if they are duplex pumps, and larger sizes in proportion if they are single cylinder. The fire pumps we are installing at the present time are duplex pumps with cylinders 4 in. diameter by 10-in. stroke. The larger sized pump would be no better for our service.

Also, there has been one case where a local inspector has rules that our fire pump, or as we call it, our general service pump, cannot be considered as a fire pump, and also an auxiliary boiler feed pump. We consider this is wrong, as our fire pump is very seldom if ever used for that purpose, and it is very seldom that we have to use it as an auxiliary feed pump. Therefore, it would be a hardship to be required to put in a separate pump for auxiliary feed, and also retain the regular pump as we have it now, as a fire pump and for no other purposes.

> Rule 4, Section 14, reads: "All steam fire pumps required shall be supplied with connecting pipes leading to the hold of the vessel with stopcocks or shut-off valves attached and so arranged that such pumps may be used for pumping and discharging water overboard from the hold."

We wish to say in regard to this section that we have not had any rulings by local inspectors compelling us to make the connections as described above, but, as the local inspectors are enforcing new rules every little while, we do not know how soon they may enforce this section, and we think it should be stricken out for the reason that we have large ballast pumps connected, not only to our water bottoms, but also to our cargo holds for pumping from these compartments and discharging overboard.

> Rule 4, Section 15, reads: "All pipes used as mains for conducting water from fire pumps on board steam vessels in place of hose shall be of wrought iron, brass or copper, with wrought iron, brass or composition connections."

This section, taken as it reads, we think is proper, but there is a difference in the construction of the meaning of this sentence by different inspectors. Some inspectors only rule that connections mean all fittings in

this water line, while others construe it to mean that it is only the hose connection. This should be made plain, so as to be interpreted the same by all inspectors.

Rule 4, Section 8, where it says: "Upon such steamers fire mains shall be led from the pump to all decks."

What does this section refer to? We would like to get a ruling from the board of supervising inspectors as to the meaning of this section for the reason that if applied to a package freight steamer where the between decks are stowed with freight to full capacity, these hose connections would not be get-at-able; and in case of the bursting of a fitting they might be the cause of a great deal of damage to the cargo. In that class of steamers, it seems that it would be better to only have the hose connections on the upper or spar deck.

According to the present ruling steamers can be inspected 60 days before the expiration of their certificate but they are not allowed to run any length of time after their certificate expires. This is having the effect of bringing all our inspections in the early spring months, as each year the boat will be inspected several days before the expiration of the certificate, and as a consequence, is getting earlier in the season every year. At the present time a large majority of the lake steamers are inspected in April and May, and it will only be a short time until all the older vessels will be inspected in April, according to the present ruling. We think this ruling should be changed so as to allow the inspection to be made within 30 days before the expiration of the certificate or 30 days after.

Rule 3, Section 3: "The air tanks of all metallic lifeboats built after June 30, 1906, shall be provided with air pump connections of ½ in. outside diameter for the purpose of testing the airtightness of said tank."

We have found in our practice that the life boats being furnished at the present time will not remain air-tight after being put to the test a few times, and we think this matter should be taken up with the board of supervising inspectors that a more rigid examination be made on new metallic lifeboats. The form of construction should be changed, or else the air-tight compartments should be made stronger, as the way they are constructed at the present time, they subject steamboat owners to continual expense in keeping them tight, so as to pass the inspection of the local steamboat inspectors.

We think it advisable that this Association of Fleet Engineers should meet with the ship building companies of the lakes and formulate a plan for presenting the matters referred to above to the board of supervising inspectors now in session at Washington, and endeavor to get rules and regulations that will be more favorable for the vessel owners on the lakes.

We also think that it would be advisable for a committee to be appointed to rewrite the rules for the inspection of lake steamers, for the reason that our service is entirely different from either ocean steamships or river steamers. As the rules are made at the present time, they endeavor to cover all classes of steamers sailing under the American flag, and we certainly should have a separate set of rules for the lake district.

At the present time, there is a wide difference in the interpretation of the rules by the different local inspectors. For example, at one port an inspector will rule that the arrangement of piping, boiler connections, etc., is according to the rules and regulations, and gives us a certificate accordingly; and probably on the next inspection we will be in a different district and there will be an entirely different construction put on the ruling, and we will be compelled to change piping and fittings. These matters are left to the discretion of the local inspector in each district and we have found so many variations in their rulings in the last one or two years, that we think the matter should be taken up and rulings made so plain that they can be construed as meaning but one way.

The committee of fleet engineers, which will go to Washington next week to present the matter to the board of supervising inspectors, as already announced, consists of F. B. Smith, James Mitchell, Thomas Durkin, C. J. Fox, Joseph F. Hayes, A. Arnold.

The executive committee of the Lake Carriers' Association has appointed an auxiliary committee upon aids to navigation from among the captains as follows: Robert Murray, Edward Martin, John Lowe, Samuel C. Allen, H. H. Parsons. Charles B. Galton, Walter Stewart, C. H. Woodford, C. A. Benham, John Ivers, M. A. Budd, Capt. Thomas Hough.

AIDS TO NAVIGATION FOOT OF LAKE ERIE.

A committee, consisting of Captains William E. Clarke, Walter Robinson, J. J. Colman and Peter Thompson of Buffalo lodge, Shipmasters' Association, submitted the following petition to the Lake Carriers' Association at their annual meeting in Detroit on Jan. 16. The petition was referred to the executive committee:

"The necessity for better aids to navigation at the foot of Lake Erie, to assist the commerce of Buffalo and Niagara river, has long been recognized and earnestly wished for by masters and owners of vessels engaged on the above route.

"For more than 50 years there have been spasmodic agitations, the objects of which have been to bring about the establishment of a lighthouse on Point Abino, Ont., but nothing has ever been accomplished in that direction for several reasons and it is now time to direct our efforts in another direction which will be more likely to terminate successfully.

"A lightship anchored south of Point Abino and equipped with suitable lights and fog signal apparatus, and so constructed and moored that it would be sure to stay on its station without fear of being misplaced through stress of any kind of weather, would fill all the requirements of navigation better than any shore light.

"The Shipmasters' Association, Lodge No. 1, at a regular meeting unanimously approved of a resolution directing its support of a petition to the lighthouse board and the rivers and harbors committee, United States congress, asking them to recommend and provide for this much needed aid to navigation in their next bill to congress on this subject, and also to get the congressmen from this district interested in its support, and to inform all sister lodges of the action taken by Lodge No. 1, Shipmasters' Association, to bring the matter to the attention of the grand lodge, and appointed a committee to confer with owners, managers of lake vessels, and lake marine bodies to enlist their support of the petition.

"We, therefore, request your support and ask that you take such action as you may think best to help it along, by conferring with your congressman, getting an expression on the subject from the masters of your vessels, or anything you may deem best, and kindly inform Buffalo Lodge No. 1, Shipmasters' Association, Chapin block, Buffalo, N. Y."

ABOLITION OF CENTER RANGES.

Editor MARINE REVIEW:—In your issue of Jan. 23, 1908, I notice in your report of the meeting of the Lake Carriers' Association, that there had been some talk of abolishing the center ranges in the channels where now established. That, if these ranges were abolished, it would diminish the chances of collision, as with the center ranges all vessels always hold to the center of the channel.

I am of the opinion that the collisions

would multiply rather than diminish, as on a dark night coming down or going up the river without having any other guidance except the buoys, and especially when there is a fog arising off the water or a haze just high enough to obscure the buoys. Often the fog will arise so as to obscure the buoys in day time and yet one can see the center ranges and without these for a guidance it would make it difficult and unsafe navigation, as these can be seen above the haze or fog, and in this way one is always sure of being in the channel. It is all right for an up-bound boat to stop and let go her anchor, but for the down-bound boat it is not so easily done, as it has the current with it and would be liable to swing across the channel, especially where it is only 300 to 400 ft. wide, and get one end or the other on the bank.

In looking over the list of collisions that occurred during the season 1907, I find that there are about three that occurred where there were any center ranges. There was one at Fort Gratiot and two in the Detroit river. The most serious collisions we had occurred where there were no center ranges or lights to guide them at all. Take, for illustration, the collision of the steamers Reis and Monroe Smith in the St. Clair river. This, one of the most serious collisions of the season 1907, happened when there were no center ranges, and I fully believe that had there been center ranges at this point there would have been no accident, as this is one of the points in the St. Clair river where a set of range lights would be of great service.

There were a number of collisions between Fort Gratiot and Bar Point, but these can not all be attributed to the center ranges. I think there were only three occurred where these were established.

Some of the navigators always keep the center of the channel—the other fellow will know how far he can keep to the one side of the channel by the aid of the lights when he is unable to see the buoys, and in this way avoid accidents.

But, we are not all center channel pilots, there are only a few of these men we meet in the rivers.

However, I think after a short trial without center ranges, the vessel owners would be glad to have them re-established. VESSEL MASTER.

Cleveland, Jan. 27.

A. Drewell & Co., Kobe, Japan, sold and delivered to Japan last year the steamers Ilseworth, Blackheath, Falk, Colmore, Poschan, Skuld, Athenian and Tartar.

SHIPMASTERS' ASSOCIATION ELECTIONS.

Following are the results of the elections of the various lodges of the Shipmasters' Association:

Lodge No. 1, Buffalo, N. Y.: President, Martin S. Peterson; first vice president, Peter Thompson; second vice president, W. H. Stevenson; treasurer, John B. Hall; secretary, Charles McMillan; chaplain, J. H. Coleman; marshal, Dan Caughlan; warden, Harry Warwick; sentinel, P. O'Neil.

Lodge No. 2, Port Huron, Mich.: President, Edward Hendricks; first vice president, H. Maitland; second vice president, A. J. Cotton; financial secretary, J. H. Sinclair; treasurer, D. M. Sinclair; chaplain, James Cassin; marshal, J. W. Kelley; warden, F. W. Manual; sentinel, John Little; delegate to grand lodge, E. Hendricks; alternate, P. F. Powry.

Lodge No. 3, Chicago, Ill.: President, Wm. Disher; vice president, J. K. Olson; second vice president, Samuel Anderson; treasurer, Wm. W. Shaw; secretary, F. B. Higgie; chaplain, E. G. Kohnert; marshal, J. W. Isbister; warden, T. J. Higgins; sentinel, John HcAvoy.

Lodge No. 4, Cleveland, O.: President, Howard Byrns; first vice president, Robert Thompson; second vice president, James Burr; treasurer, Fred Leckie; secretary, J. A. Holmes; delegate to grand lodge, Howard Byrns; alternate, H. Kelley.

Lodge No. 6, Milwaukee, Wis.: President, Capt. James McGinn; vice president, Capt. C. E. Moody; second vice president, Capt. D. C. Sullivan; treasurer, Capt. F. C. Maxon; secretary, Capt. John McSweeney.

Lodge No. 7, Detroit, Mich.: President, A. J. Mahon; first vice president, F. J. Simpson; second vice president, B. S. Baker; treasurer, A. J. McKay; secretary, L. P. Anderholt.

Lodge No. 8, Marine City, Mich.: President, Hector Brown; first vice president, Wm. Maxwell; second vice president, Wm. Shackett; secretary, James E. Cottrell; treasurer, James Taylor; chaplain, A. T. Broadbridge; sentinel, John Atwell; warden, John Hollingshead; marshal, S. B. McCann; delegate to grand lodge, Hector Brown; alternate, Wm. Hogan.

Lodge No. 9, Toledo, O.: President, James B. Lyons; first vice president, A. Stalker; second vice president, Robert Bailey; secretary and treasurer, E. G. Ashley; chaplain, John Cunningham; marshal, Byron Warner; warden, D. F. Doville, sentinel, Norma Walker; delegate to grand lodge, Capt. James B. Lyons; alternate, Andrew Stalker.

QUESTIONS FOR MASTERS AND MATES.—NO. 57.

748. A ship from latitude 43° 15′ N makes a difference of latitude of 138 nautical miles south, what is the latitude arrived at?

749. A vessel sails from latitude 42° 42′ N to latitude 44° 30′ N, how many nautical miles north has she gone?

750. How many statute miles has she sailed north?

751. Describe a pelorus and its use?

752. What is an azimuth circle?

753. What is the principle of the degree divisions of an azimuth circle?

754. What is the principle of reckoning the azimuth on the circumference of a pelorus?

755. What does zero on the azimuth circle stand for in this latitude?

756. What point does 45 degrees to the right of zero on the azimuth circle stand for?

757. What is the difference in longitude between a place in longitude 165° W and another place in longitude 157° E?

758. What is the difference in time between two?

759. How do you measure the miles on a Mercator chart?

QUESTIONS FOR WHEELSMEN AND WATCHMEN.

367. How many points in 18° 15′?

368. Add together 5° 37′ 30″ and 11° 15′.

369. How much is this in points of the compass?

370. How do you find the value of one point of the compass?

371. How many degrees in 5/8 of a point?

372. How do you know that there are 11° 15′ in one point?

373. How many seconds of arc in 1′?

374. What makes seconds of arc?

375. How many points in 35°?

376. How much is 1/8 point in degrees?

377. How much is 4° equal to on the compass?

378. Divide 180° by 8.

ANSWERS TO QUESTIONS FOR WHEELSMEN AND WATCHMEN.

345. 141.45 statute miles.

346. 36,960 ft.

347. 72,960 ft.

348. The angle the course makes with a true meridian, or the course measured from the true chart compass.

349. A true course corrected for variation or the course measured from the magnetic meridian.

350. The variation.

351. A correct magnetic course.

352. The deviation.

353. The difference between the true meridian and the magnetic meridian of any place.

354. Two.

355. When the magnetic needle is drawn to the right of the true meridian it is named easterly and when it is drawn to the left it is called westerly.

356. The influence on the compass due to the ship being built of iron and all equipment of steel and iron.

OBITUARY.

The late A. C. Saunders, president of the Lorain Coal & Dock Co., was a man of singular charm of person whose loss will be deeply felt throughout the whole lake district. He was one of those rare characters whom it is a delight to honor. An intimate friend, writing of him in the *Plain Dealer*, said:

"The sketches of the life of Mr. Saunders, which have thus far appeared, have been quite full as to his biography and business career, but have not set forth that phase of his character, which so much endeared him to a very wide circle of friends. Hs great business capacity and excellent judgment, it is true, enabled him to attain a large measure of success, but this was also very largely due to a frankness, firmness and integrity of character which those with whom he had dealings quickly came to recognize and depend upon.

"In addition to these qualities, which led to his success in the business world, Mr. Saunders was charitable in judgment toward his fellowmen, gentle in his contact with others, and most affectionate in his home life. These were the qualities which most marked his life and dominated his conduct both in business and private relations.

"While absolutely loyal to the large interests entrusted to his charge, a broad minded fairness habitually characterized his consideration of questions arising in connection therewith, and he never sought an undue advantage.

"As a large employer of labor, his treatment of his employes was considerate to such a degree that no cause of complaint was ever found among them. During the recent stringency, to meet pay rolls, Mr. Saunders went to New York and purchased currency for that purpose at a large premium. To the remonstrance of a friend that such an expenditure was unnecessary, as the men might as well be paid with such checks as were then in general use, Mr. Saunders replied that when the men undertook to use these checks among trades people they would be subjected to discounts that would materially reduce the amount of their wages; that Thanksgiving was approaching, and he was determined, no matter at what cost to his company, that his men should have their full wages. This was characteristic of the man.

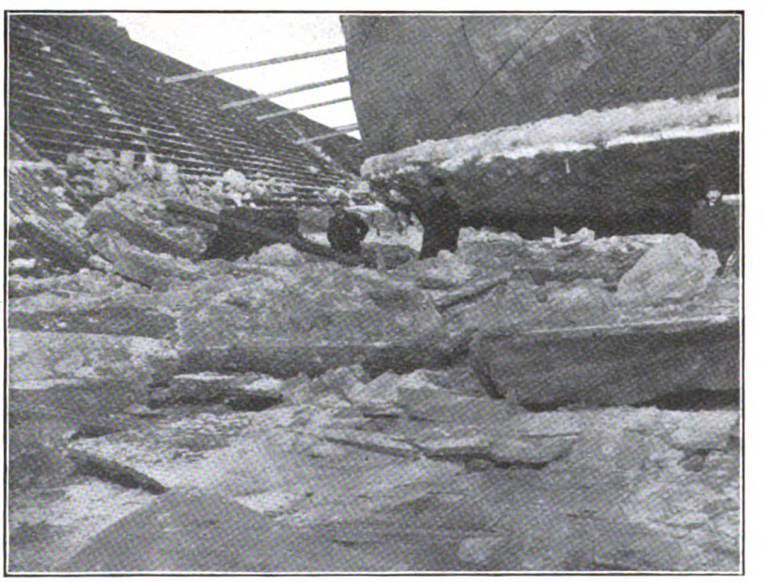
"The same qualities marked the course of his private life. To lend a helping hand, or to do a kindness, afforded him the greatest pleasure, and no effort to that end was ever burdensome to him. No worthy charity ever appealed to him in vain, and his giving, while entirely unostentatious, was most liberal. He was never heard to speak a harsh word of anyone, and if forced to criticism, used it so sparingly and reluctantly that no offense could be taken.

"Of the home life of Mr. Saunders, it is not necessary to speak. The gentle and kindly qualities which actuated the man in other relations were here at their best. His family and wide circle of friends experienced, while others may know with certainty, their beneficent effect."

STEAMER SOCAPA IN DRY DOCK NO. 2 AT SUPERIOR.

WINTER DOCKING IN LAKE SUPERIOR.

Docking a boat on Lake Superior during the winter time, as the accompanying photographs show, is not an easy matter. The steamer is the Socapa, which was put in dock No. 2 at Superior on Jan. 7, the ice measuring a little over 2 ft. in thickness in the dock. At the time



STEAMER SOCAPA IN DRY DOCK NO. 2 AT SUPERIOR.

the photographs were taken the workmen had only found seven plates to come off, but there was a coating of from 3 in. to 1 ft. of ice underneath the bottom. The ice was removed off the bottom of the vessel by puting steam into the tanks. At the time the Socapa was in No. 2 dock the Sonoma was in No. 1 dock having thirty-eight plates replaced.

RECORD CARGO OF COAL.

Editor MARINE REVIEW:—I wish to correct a statement in your issue of the MARINE REVIEW dated Jan. 23, relative to the coal cargo record of 1907. You stated this record was made by the steamer W. B. Kerr when she loaded 11,751 tons of soft coal. The steamer Kerr loaded the above cargo on June 8. She came back to our dock on June 28, and put aboard 12,559 tons of cargo.

The steamer L. S. DcGraff came over from the American Ship Building Co.'s yard on July 2, and loaded her first cargo. The captain, wishing to surpass the steamer Kerr's cargo, loaded aboard 12,680 tons cargo and 428 tons fuel, making total of 13,108 tons, which was the largest cargo floated on the great lakes at that time.

The Kerr came back to our dock on July 13, and loaded 12,676 tons of cargo, thus surpassing her other record.

The L. S. DeGraff came in on July 23, and the captain thought that he could carry full 13,000 tons cargo by not taking very much fuel. He succeeded in putting aboard 12,935 tons 500 lbs. cargo and 248 tons 1,600 lbs. fuel, making a total of 13,184 tons 100 lbs., which I believe was the largest cargo of soft coal floated last season. This vessel also holds the record wheat cargo of about 422,000 bu. This is a Lorain-built boat, and I believe is 1 in. longer than any other vessel on the great lakes.

Cleveland will have to try again to capture the record from the port of Lorain.

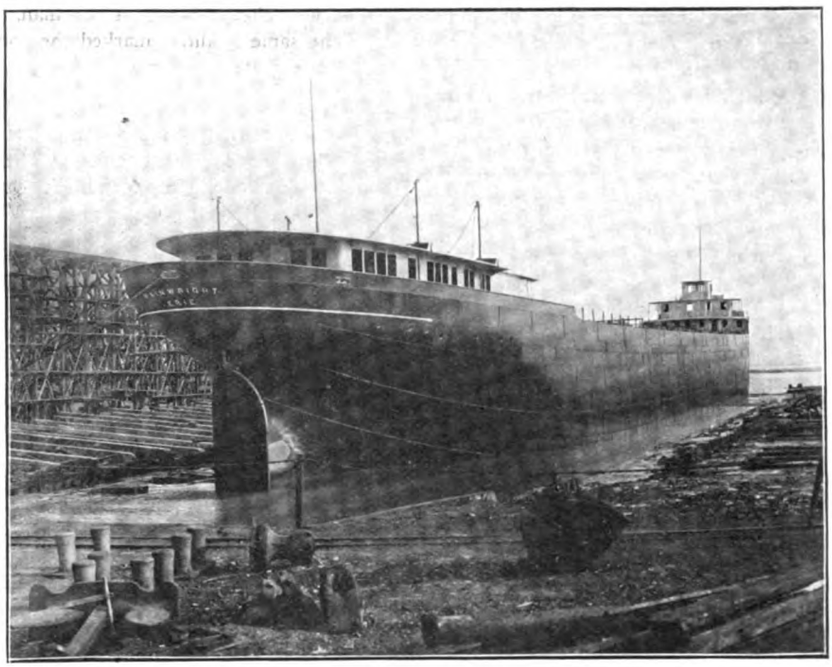
Yours very truly,

C. E. PIERCE,
Agent.

WORK IN LAKE SHIP YARDS.

The bulk freighter Wainwright was launched from the Wyandotte yard of the American Ship Building Co. on Saturday last for Edward Mehl, of Erie, and was christened by Miss Blanche Atella Giasson, of Wyandotte. The sponsor for the Wainwright was selected by the senior class of the Wyandotte high school, Miss Giasson receiving the highest number of ballots. All her classmates attended the launching to see that she did a good job.

The Wyandotte is one of the smaller



THE WAINRIGHT IMMEDIATELY AFTER LAUNCHING.

class of freighters, being 440 ft. over all, 420 ft. keel, 52 ft. beam and 28 ft. deep and will carry about 7,500 tons. Capt. Dorin Elliott, of Bay City, who last year commanded the Uganda, will bring out the Wainwright.

The package freighter Burlington was launched on Jan. 21 from the Ecorse yard of the Great Lakes Engineering Works. She is a sistership of the steamer Bennington, which was launched from the same yard at the close of last year. Both are building for the Rutland Transit Co. The Burlington is of Canadian canal dimensions, being 256 ft. long, carrying about 3,000 tons on 18 ft. draught.

The Toledo Ship Building Co., Toledo, O., has made extensive repairs on the steamer J. H. Wade. While in the dock 13 plates were removed from her bottom and replaced, and other work in the dock included bushing the rudder pintle and outboard bearing and also putting her shoe in first-class shape. She was floated out of the dock to make room for another steamer and workmen are now making the following repairs upon her: Removing her wooden deck and replacing it with a steel deck; removing stanchions and deck beams in her hold; making her hatches 12 ft. fore and aft in order to facilitate the clams. She will also have new hatch covers with Mulholland hatch fasteners, new steel coal bunkers and extensive repairs to machinery.

The steamer which is being built at the St. Clair yard of the Great Lakes Engineering Works for the Ashtabula Steamship Co., will be named the Normania. She will be launched on Saturday next and will be christened by Mrs. Herbert A. Kinnon, of Cleveland.

The Detroit Ship Building Co. will make repairs to the tender Marigold amounting to $450.

STERN-WHEEL STEAMBOAT.

Lieut. Col. S. W. Roessler, government engineer at Portland, Ore., opened bids in December for the construction of a stern-wheel steamboat for use in connection with the work of improving the Columbia river above Celilo, Ore., to the mouth of Snake river. There were six bidders either for hull or machinery, but only two that offered to build the boat complete. These were the Willamette Iron & Steel Works, Portland, Ore., at $55,245 and the Portland Iron Works at $59,650. Contract was awarded to the Willamette Iron & Steel Works. Two bids were submitted on constructing the hull only, Joseph Supple, Portland, Ore., at $27,600, and Theodore Knudson and C. L. Stoneburg, Portland, Ore., at $23,550. There were two bidders on machinery alone, the Phoenix Iron Co. at Portland, Ore., $32,000, and the Smith & Watson Iron Works at Portland, Ore., $32,850. This steamboat is to be of wood 160 ft. long, 34 ft. beam and 8 ft. 7 in. deep at stem. The propelling machinery will be of the stern-wheel type of horizontal engine with cylinders 18 in. diameter and 84 in. stroke of piston, supplied with steam by a boiler of the firebox type.

THE LONGITUDE AT SEA.

A set of ten questions covering ocean navigation has been prepared by the members of a Lake Erie yacht club and sent to the editor of this department for a simple explanation and the working out of the problems in full. The following explanation and example covers the first two problems. The balance of them will follow later.

Q. 1. Describe briefly how you work a time sight for longitude?

Ans. The necessary data is the true altitude, latitude and polar distance. At the instant of measuring the altitude with the sextant note the time by chronometer accurately, and correct it for rate, if any. This will be the time at Greenwich, or what is the same thing, the hour angle from Greenwich. The idea is to determine the number of hours after noon or before noon of Greenwich. Correct the observed altitude for semi-diameter, index-error (error of sextant), dip and refraction. Correct the declination for hourly difference to make it correspond to the number of hours after Greenequation of time. With the corrected wich noon. Do the same with the declination find polar distance: if you are in N. lat. and the dec. is N, or in S. lat. and the dec. is S, subtract the corrected declination from 90° to get polar distance; if you are in N. lat. and dec. is S, or in S. lat. and dec. is N., add dec. to 90° to get polar distance.

Then add together the polar distance, latitude and altitude. Divide the sum by 2, and call the quotient the half-sum. From the half-sum subtract the altitude and call the answer the difference. Now add the cosecant of the polar distance, the secant of the latitude, the cosine of the half-sum and the sine of the difference as obtained from Table 44 of Bowditch. If the index of the sum is more than 9 (say 18), set it down so. Divide the sum by 2. This quotient is the sine of apparent time at the ship, which you are to take out of the a. m. column of Table 44 if the observation was an a. m. one, from the p. m. column, if p. m. The difference between the apparent time at ship and Greenwich apparent time, is the longitude of the ship in time, which turn into degrees, minutes and seconds of arc. Then if Greenwich apparent time is greater than apparent time at ship the longitude is west; if less, the longitude is east; or

Greenwich time best,
Longitude west;
Geenwich time least
Longitude east.

Apply the corrected equation of time to Greenwich mean time to get Greenwich apparent time. The Nautical Almanac, in which it is found, will tell you whether to add or subtract the equation of time from Greenwich mean time. Greenwich mean time and the chronometer time corrected for rate are the same thing.

The most important part of this work is in determining the precise time and date at Greenwich, and whether the time is a. m. or p. m. at Greenwich, at the exact time of measuring the altitude. All data in the Nautical Almanac is given for Greenwich noon and is based upon astronomical time, which has its beginning at noon and goes through from 0h to 24h with no a. m. or p. m. The time of ship is based upon civil time, which begins at midnight and is divided into two 12-hour divisions, one a. m., the other p. m. The last half of the civil day conforms to the first half of the astronomical day, therefore, p. m. civil time is the same as astronomical time of the same date, but civil time a. m. must have 12 hours added to its time and one day taken from the date in order to make it conform to astronomical time. Example: Jan. 15, 3 p. m. civil time, is astronomical time 3 hours of the same date, but Jan. 15, 10 a. m. civil time, is 22 hours Jan. 14, astronomical time. Since the data in the Nautical Almanac is based upon astronomical time at Greenwich, and goes through from 0h to 24h, and the chronometer, which is for showing this time, has its face divided into 12 divisions instead of 24, to tell whether the time is a. m. or p. m. at Greenwich by merely looking at the chronometer, is the confusing part of the operation. We must know the number of hours after or before Greenwich noon in order to reduce the elements in the Nautical Almanac (which is for Greenwich noon) to the meridian of the ship. This is easily done by knowing the longitude of ship approximately, and at sea, this of course, is always kept by dead-reckoning. Turn the ship's longitude into time, and if in west longitude subtract it from the chronometer time to get mean time at ship. Example: Jan. 15, p. m. at ship, chronometer showed 2 o'clock, longitude by dead reckoning 60° W, what is the time and date at ship and also at Greenwich? 60 degrees of longitude equals 4 hours, which subtracted from 2 o'clock gives 10 o'clock; hence the ship's time is 10 p. m. Jan. 15. Knowing the time at ship add the longitude to it if west to get the time at Greenwich; but first turn the ship's time into astronomical time. This is only necessary when the ship's time is a. m., 10 p. m. being astronomical time the 4 hours added to it makes 14 hours at Greenwich the 15th, and since astronomical time begins at noon and is reckoned through 24 hours, 14 hours must be that number of hours after noon, or 10 hours before noon of the 16th.

Example: A. m. at ship, Jan. 15, chronometer showed 10 o'clock, longitude by dead-reckoning 60° W; what is time at ship and the date and time at Greenwich?

Four hours from 10 hours is 6 hours, hence the time at ship is 6 a. m., and the astronomical time at ship is 18 hours, Jan. 14th, and the Greenwich time is just 4 hours in advance of this time, therefore, Greenwich time is 22 hours, Jan. 14th, or 2 hours before noon of the 15th.

For east longitude the conditions are just opposite.

The fundamental principles of longitude are simply these: The sun apparently revolves round the earth once in 24 hours, passing through 15 degrees of longitude every hour; hence, if we can ascertain how many hours and minutes east or west of Greenwich the sun is, and how many hours and minutes east or west of the sun we are, we shall know our longitude. When the longitude is not known then the problem is to find the local hour angle of the sun. The chronometer is for the purpose of showing the hour angle from Greenwich, and by it we can get Greenwich mean time, but that is simply the hour angle there. If we find the hour angle for the meridian upon which the ship is located, the difference between the two will be the number of hours, minutes and seconds we are east or west of the Greenwich meridian, and this quantity must be turned into degrees, minutes and seconds of arc.

Will you work the following example in full and give explanation where you think it is required?

Example. At sea on Oct. 26, 1907. a. m. at ship in west longitude, latitude in 28° 24′ N, the altitude of sun's lower limb was 25° 1′, height of eye 20 feet, index error plus 1′ 30″, time by chronometer was 26 days 7 hrs. 48 m. 09 s. p. m. which was fast

2m 45s on mean time at Greenwich April 4, and losing 3s. daily. Required the longitude in?

From April 4 to Oct. 26 is an interval of 205 days.

205 No. of days.
5s losing daily.
615s equals 10m 15s total lost in 205 days.
2m 45s fast Apr. 4.
7m 30s slow Oct. 26.
Chronometer Time 7h 48m 09s after noon of Greenwich, Oct. 26.
Chronometer Corr. 7m 30s slow (add)
Greenwich M. T. 7h 55m 39s equals 7.92 hrs. after noon.
Corr. Eq. Time 15m 54s add.
Gr. App. Time 8h 11m 33s after noon.
Equation Time Diff. for 1h .282s
7.92
2 238 plus
Equ. Time for Oct. 26, Gr. noon 15m 51.85s
Corr. for 7.92 hrs. after noon 2.23s plus
Corr. Eq. T. for 7.92h after noon 15m 54.08s
Declination Diff. 1h 51.69"
7.92
409 38" equals 6 8"
Decl. for Gr. noon Oct. 26, 12° 8' 44" S
Correction 6' 48" plus
Corrected Decl. 12° 15' 32" S
90
Polar Distance 102 15' 32"
Semi-Diameter 16' 00" plus Dip. (ht. eye) 4' 23"
Index Error 1' 30" " Ref. 2' 4"
17' 30" — 6' 27"
— 6' 27"
11' 3" plus, correction to apply.
Observed altitude 25° 01'
Correction 11'
True alt. 25° 12'

Polar Distance 102 15' 32" cosec 0.01082
Latitude 28 24' sec 0.05569
Altitude 25 12'
2) 155 51' 32"
77 55' 46" cos 9.32039
25 12'
52 43' 46" sin 9.90080
2) 19.28770
9.64385 sine of apparent time at ship.

Sine 9.64385 gives hour angle 8h 30m 58s and it was taken out of a. m. column of Table 44 because the observation was an a. m. one.

12 hours must be added to Greenwich apparent time because the time there is p. m. and at ship a. m.

Greenwich App. Time 8h 11m 33s p.m.
12h
20h 11m 33s
Apparent Time at Ship 8 30 58
Longitude in Time 11h 40m 35s
11h 4)40m(10 4)35s(8'
15 40 32
55 3 x 15 = 45°
11
165
10
1.5 8° 45' long. west. This is the answer to the above example.

Note.—When one time is a. m. and the other time p. m. it will be necessary to add 12 hours to the p. m. time before subtracting.

SHIP YARD NOTES.

The Harlan & Hollingsworth Corp., Wilmington, Del., is remodeling the Wilson line steamer City of Chester. She was built in 1888.

Bids received at the United States engineer office, Wilmington, N. C., Jan. 10, 1908, for the construction of two six-pocket bottom dump scows, were as follows:

J. C. Marmaduke, Jan. 11. The cruiser is 70 ft. in length and is propelled by gasoline engine.

The Philadelphia Ship Repair Co., Philadelphia, Pa., launched a steel barge for M. Dempsey & Sons, of that city, recently. The barge is 185 ft. long, 23.10 ft. beam and 13 ft. deep.

The William Cramp & Sons Ship & Engine Building Co., Philadelphia, Pa., are to make extensive repairs to the British steamship Falls of Moness, including the fitting of new furnaces.

The Union Iron Works, San Francisco, Cal., have about completed the

John H. Dialogue & Son, Camden, N. J., have completed the large tugboats Hercules and Goliath, which they built for the Shipowners' & Merchants' Tugboat Co., of San Francisco, Cal., and, after a highly satisfactory trial trip for each of them, they were laden with oil fuel and will start at once for their destination by way of the Straits of Magellan.

J. R. Van Dyke, Seattle, Wash., launched a $17,000 cruising yacht for

alterations to the Standard Oil Co.'s oil-carrying steamer Maverick. Her tankage capacity was increased from 13,000 to 17,000 barrels.

The H. D. Bendixsen Ship Building Co., Eureka, Cal., launched the steam schooner Shoshone, building for C. R. McCormick & Co., last week. Her machinery will be installed by the Fulton Iron Works, San Francisco, Cal.

The Newport News Ship Building & Dry Dock Co., Newport News, Va., has been awarded contract for effecting repairs to the survey steamer Bache, which was damaged by the United States hospital ship Jamestown dragging into her in Hampton Roads early in the year.

The British Columbia marine railway at Esquimalt, B. C., recently completed repairs to the British steamer Indravelli, for which the contract price was $45,000. The steamship was damaged by stranding while bound from Japan to Vancouver. Repairs were effected in less than the 67 days allowed by the contract.

The Maryland Steel Co., Sparrow's Point, Md., has been awarded contract by the Pennsylvania Railroad Co., for the construction of a steam lighter for service in New York harbor. The vessel will be a duplicate of one built last year, being 192 ft. long, 32 ft. beam and 15 ft. depth, equipped with compound engine, cylinders 17 and 34 by 24-in. stroke.

The Atlantic Works, East Boston, Mass., launched the steamboat Betty Alden, Jan. 25. The vessel is building for the Nantasket Beach Steamboat Co., of Boston, Mass., and was christened by Miss Betty Alden, a lineal descendant of John and Priscilla Alden, made famous by Longfellow's poem "The Courtship of Miles Standish." The Alden is built of wood and is 182 ft. long, 31 ft. beam and 12 ft. deep. She is fitted with triple-expansion engines.

The Joseph Dixon Crucible Co., Jersey City, N. J., have just issued a little 12-page booklet entitled "Dixon's Graphite Brushes." This booklet contains considerable information of vital importance to users of graphite brushes. When the Dixon company installed an electric plant in 1900 it had more or less trouble with the carbon brushes with which the generators and motors were equipped. Knowing the smoothness and conductivity of graphite the company believed that a graphite brush would give better satisfaction than a carbon one. The present brush has been evolved after much experimenting. The company has not had occasion to turn down its commutators since the installation of its electric plant. The booklet is of considerable interest and will be sent to anyone upon request.

AROUND THE GREAT LAKES.

The annual convention of the Licensed Tugmen's Protective Association will be held in Toledo next year.

Capt. John Hollingshead of Marine City has resigned from the command of the steamer S. S. Curry of the Hawgood fleet.

The two new steamers building for J. H. H. Brown and Harvey L. Brown of Buffalo will be managed by Brown & Co. of Buffalo.

Capt. James Dover, who sailed the steamer Wm. H. Mack last season, will sail the steamer James P. Walsh the coming season.

The name of the Buffalo Ship Chandlery & Supply Co., 11 and 13 Main street, Buffalo, has been changed to the Great Lakes Supply Co.

Capt. David Wilson of the steamer Langham has deided to retire and the Langham will be sailed the coming season by Capt. Thomas Carney of Detroit.

Fire underwriters have told Duluth city authorities that a steel fireboat with a capacity of 9,000 gallons a minute ought to be provided for the protection of the water front.

The United States lighthouse inspector, Olin N. Wexel, of Chicago, was killed at Muskegon on Tuesday by a switch engine while he was walking on the railroad tracks with a heavy cap drawn over his ears.

The hull of the tug George Hand, which was burned at the Ecorse ship yard several weeks ago has been raised. It was found that the fire had practically destroyed its interior. The tug has been stripped of her machinery.

The Reid Wrecking Co., of Sarnia, has sold the steamer Germanic to Georgian Bay parties. The Germanic will be overhauled and equipped with a derrick in order that she may carry lumber from Georgian Bay to Lake Ontario points.

The steam barge Saginaw and the tow barge Pomeroy, which were libeled last October, were sold at auction at Port Huron last week. The Saginaw was bid in by F. H. Riebenach of Alpena for $1,200, and the Pomeroy was purchased by Capt. Bell of Marine City for $500.

The Great Lakes Register of Cleveland has opened an office in Detroit at No. 510 Majestic building with John T. Webster as surveyor for the Detroit district.

The steamer John C. Gault has been sold by Fritz Riebenach of Alpena and Fred Upton of Charlotte, N. Y., to A. F. Ferguson and others of Detroit. Part of the consideration is the steam yacht Vita built originally for M. S. Smith. The Gault will undergo considerable repair at the Ecorse yard of the Great Lakes Engineering Works.

Capt. W. G. Stewart has been appointed marine superintendent of the Gilchrist fleet. He sailed the steamer H. P. McIntosh last season. Capt. Stewart has for the past three or four years looked after the construction of the new vessels for the Gilchrist fleet. He is one of the foremost masters on the lakes.

The steamer Isabella J. Boyce and the schooner Iron Cliff have been chartered for the next season by the Diamond Crystal Salt Co. of St. Clair. The Boyce is now undergoing repairs at Port Huron as a result of her collision with the steamer Lycoming at the Limekiln Crossing last season. Capt. John Pringle is looking after the work.

The Mutual Transit Co. of Buffalo, which has been under indictment by the government under a rebating charge, was found guilty before the court at Elmira this week. The company immediately moved for a new trial, Judge Hazel reserving sentence pending arguments which will be heard in Buffalo on Feb. 20. The case has attracted much interest among lake shippers generally. The charge is that the Mutual Transit Co. rebated $1,230.57 to the Camden Iron Works of Philadelphia on a shipment consigned to Winnipeg.

Major W. V. Judson, government engineer with headquarters at Milwaukee, has just returned from a trip to Washington undertaken in the interest of his district. The bill authorizing the establishment of a lightship for Milwaukee harbor has been introdued in congress with reasonable hope for its passage during the present session. Congressman Stafford has also petitioned congress to establish a lightship equipped with a fog signal at the southeast shoal, North Manitou; a fog signal station at Big Point Sable directly across the lake from Manitowoc; a lighthouse equipped with a fog signal at Lansing shoal, and a large acetylene buoy with fog bell at Garden Island shoal.

J. A. Francombe of Detroit, manager of the Hope Transportation Co., has secured the contract to carry pulpwood for the Detroit Sulphite Pulp & Paper Co. the coming season. The contract calls for the delivery of 26,000 cords, which will be picked up at Port Arthur and other ports along the north shore of Lake Superior. In addition to the steamer W. R. Stafford and the shooner Ed McWilliams of the Hope company, he has chartered the steamer George King and the schooners Teutonia, Gawn and Melvin Bacon. The Stafford will tow the McWilliams and the Bacon, while the King will tow the Teutonia and the Gawn. The King and tow are owned by M. Sicken of Marine City. The pulpwood is to be delivered at the pulp and paper company's plant in the River Rouge.

The Buffalo Dry Dock Co. is making some extensive repairs upon the steamer Western Star, owned by Michael Cummings, Oswego, N. Y., which went ashore upon the breakwater shoal at Buffalo Nov. 25 during a gale. Ninety-two shell plates have been removed and all the floors and internal construction taken out. The vessel went into dry dock Dec. 23 and will be out the first week in February. The estimated cost of the repairs is about $80,000.

The steamer Cornell of the Pittsburg Steamship Co.'s fleet which is holding a cargo will be the first boat to be unloaded at the new coal dock of the Duluth, Mesabi & Northern Railroad at Duluth. This dock is the largest and most modern coal dock at the head of the lakes, being 3,000 ft. long, 600 ft. wide, with a storage capacity of 700,000 tons. The equipment consists of three Mead hoisting towers of the one-man counterbalance type, a cable road system, storage and loading pockets, double pick-up bridge, railroad car hauling system, screenings conveyor and elevator, and a screening storage conveyor. The towers, testers and bridge are of steel construction and the machinery is electrically operated, power being furnished by the Great Northern Power Co.

LOSS ON CITY OF CLEVELAND.

The underwriters and the American Ship Building Co. have reached an agreement on the loss of the passenger steamer City of Cleveland, which was badly damaged by fire, while nearing completion, at the Orleans street yard of the Detroit Ship Building Co. last spring. The loss was estimated at the time at $730,000 and it is understood to have been settled on the basis of 75 per cent of the estimated loss, which means that the underwriters had to pay about $550,000, which is the largest loss that they have ever been called upon to meet on the lakes. The work of rebuilding the boat has been pushed steadily and she will be ready to go into commission on May 15. This severe loss added to that of the Cyprus, which, with cargo, amounted to about $300,000, has made a hard sledding for the underwriters on the great lakes during 1907.

ATLANTIC COAST GOSSIP.

Office of the MARINE REVIEW,
Room 1005, No. 90 West St.,
New York City.

The returns of the first big storm of the winter show a most appalling loss of life and damage to shipping along the Atlantic coast. The smaller class of coaster, lighters, and barges seem to have suffered most damage, the many lives lost being principally due to the breaking adrift and foundering of the latter.

Mariners are warned by government officials to be alert on approaching the land, as the lightships, buoys and shore lights have been more or less damaged by the recent storms. In several instances lightships have been driven from their stations and may not be returned for several days to their positions.

The officers and men composing the crew of the tug Katherine Moran, which made the voyage from New York to Panama on the Pacific Coast, have arrived from the isthmus via the steamship Panama.

The Moran is 90 ft. long and of 154 tons burden. With six stops for coal and supplies the voyage of 11,616 miles was covered at an average speed of 9.13 knots. Her coal consumption was 601 tons.

The Newark, which is the finest vessel ever turned over to the naval militia of any state by the navy department, it is said, has proved entirely too big for the amateur sailors, and they have asked for a smaller craft. It is said, also, that the Wasp, lately on a recruiting mission up the Hudson, will probably succeed the Newark.

The old revenue cutter Manhattan, which has served the purposes of the government in New York harbor since the civil war, will be displaced by a new steam cutter. Senator Depew on the 23d inst. introduced a bill appropriating $65,000 for its building.

The Cunard liner Campania, during heavy weather encountered on the 24th, suffered some little damage to her ventilators and deck machinery.

Stephen Thompson, an old sailor who died recently at Brooklyn Naval Hospital, was found to have left a little matter of $15,000 in cash and deposits. Thompson entered the United States navy in 1865. This item should be of some use as an inducement to possible recruits.

The three Canadian steamship lines have cut their passage rates uniformly to meet the cuts of the Cunard line, there being no prospect of an understanding in the immediate future between the Cunard and White Star lines.

The Allan Line steamship Sicilian, from Philadelphia for Glasgow, put into Halifax last week with her rudder disabled. Both the steam and hand gear were damaged, and temporary repairs had been made to enable the liner to make Halifax. Captain Fairful had his hands frozen and the chief officer was badly hurt through being thrown to the deck during the gale.

The work of installing dining tables seating from two to eight persons in the saloons of the North German Lloyd liners goes on apace, and the old familiar long tables will soon be things of the past aboard the ships of the company.

The passenger who, through lack of pull, push, or popularity, failed to obtain the coveted seat at the captain's table in the past will receive this news with grim satisfaction.

Captains Joseph Ireland, of Linwood, N. J., and David Henderson, Cramer Hill, N. J., well known shipmasters for years engaged in the coasting trade, died at their homes on Jan. 26.

At a meeting of the board of directors of the Philadelphia Maritime Exchange on Monday, resolutions favoring the passage of the bills for the retirement of district superintendents, keepers and crews of the life-saving service of the United States, were unanimously adopted.

Passenger representatives of the International Mercantile Marine Co., including the American, Atlantic Transport, Dominion, Leyland, Red Star and White Star lines, met on Monday for their annual three days' conference. Various problems of ocean transportation and plans for further business were discussed.

A petition asking for the construction of a lighthouse at the apex of the main breakwater of the Harbor of Refuge at Point Judith, R. I., with a hundred or more signatures attached, was forwarded on Monday to the United States lighthouse board and the proper committees of congress.

The petition also asks that the experimental acetylene gas and whistling buoy that was recently removed be replaced or a lightship be established off the point as a permanent aid to navigation.

The new wrecking steamer Relief, of the Merritt & Chapman D. & W. Co., of Stapleton, will shortly leave for Cuba, where a new station has been established. Capt. Herbert R. Foster will command the Relief.

UNITED STATES TRANSPORTATION CO.'S APPOINTMENTS.

The two new 10,000-ton steamers, building for H. S. Wilkinson, of Syracuse, by the American Ship Building Co., one at the Wyandotte and the other at the Superior yard, will be named in honor of A. E. Nettleton and J. F. Durston, prominent business men of Syracuse. The steamers will be managed in the office of the United States Transportation Co. Capt. Ralph Lyons, of Lorain, will bring out the Nettleton and Capt. Harvey L. Mills, of Watertown, N. Y., will bring out the J. F. Durston. The John Dunn Jr., whch was launched at the yard of the Toledo Ship Building Co., late last season, for Mr. Wilkinson, will be brought out by Capt. J. H. Driscoll, of Cleveland. The line-up of masters of the United States Transportation Co.'s fleet during the coming season will be as follows:

Steamer.	*Master.*
A. E. Nettleton	R. J. Lyons
John Dunn Jr.	J. H. Driscoll
Harry Coulby	Alex Forbes
Lyman C. Smith	W. D. Ames
J. F. Durston	H. L. Mills
Charles Hubbard	C. Z. Montague
Smith Thompson	George W. Pierce
Hurlbut W. Smith	F. H. Reid
L. C. Smith	Wm. H. Blattner
Wm. Nottingham	Wm. McAlpine
George B. Leonard	A. W. Stalker
Monroe C. Smith	W. G. Rogers
B. Lyman Smith	C. D. Woodford
Wilbert L. Smith	Wesley Rinn
Horace S. Wilkinson	H. J. Hutchins
Charles M. Warner	Frank C. Folson
W. W. Brown	E. A. Hill
A. G. Brower	John. Morrison

IRON ORE IN NEW YORK STATE.

The Wayne County Ore Co., in which a number of Cleveland men are interested, will ship ore from its property in Wayne county, New York, during the coming season. The ore deposit lies a little north of Rochester and a short distance from Lake Ontario. Owing to its proximity to Hamilton it is expected that some of the ore will be shipped to Canada. The ore is a non-Bessemer, running about 45 per cent in iron, and the mine being a steam shovel proposition, it is expected that 1,000 tons a day can readily be shipped. This mine is so fortunately located in relation to furnaces that it can beat Lake Superior ore in furnace cost.

BIDS FOR GUIDE WALLS, DAM 13, OHIO RIVER.

Abstract of proposals for constructing guide walls, etc., for Dam No. 13, Ohio River, received in response to advertisement dated Dec. 27, 1907, and opened at Wheeling, W. Va., Jan. 25, 1908, by Capt. F. C. Boggs, Corps of Engineers, U. S. A.

Article—	Designation.	Quantity.	James Skene & Sons, St. Louis, Mo. Rate.	James Skene & Sons, St. Louis, Mo. Amount.	Hollerbach & May Contract Co. Evansville, Ind. Rate.	Hollerbach & May Contract Co. Evansville, Ind. Amount.	Fisher, Riley & Carozza, Baltimore, Md. Rate.	Fisher, Riley & Carozza, Baltimore, Md. Amount.
Excavation	cu. yd.	42,400	$ 1.00	$ 42,400.00	$ 0.40	$ 16,960.00	$ 0.75	$ 31,800.00
Fill	cu. yd.	6,400	0.50	3,200.00	0.75	4,800.00	0.60	3,840.00
Base for paving	cu. yd.	2,900	2.00	5,800.00	3.00	8,700.00	1.70	4,930.00
Riprap	cu. yd.	4,800	5.50	26,400.00	3.25	15,600.00	3.75	18,000.00
Round Piles	Lin. ft.	16,900	0.50	8,450.00	0.50	8,450.00	0.55	9,295.00
Sheet Piles	Ft. B. M.	220,000	65.00	14,300.00	60.00	13,200.00	80.00	17,600.00
Lumber	Ft. B. M.	4,650	45.00	209.25	60.00	279.00	60.00	279.00
Concrete, Class A	Cu. yd.	6,650	10.00	66,500.00	7.00	46,550.00	8.15	54,197.50
Concrete, Class B	Cu. yd.	3,200	7.50	24,000.00	7.50	24,000.00	8.00	25,600.00
Stone Masonry	Cu. yd.	175	8.00	1,400.00	10.00	1,750.00	12.00	2,100.00
Pointing Stone	Sq. yd.	210	0.50	105.00	2.00	420.00	2.00	420.00
Sewer	Lin. ft.	550	0.50	275.00	0.75	412.50	0.60	330.00
Drain	Lin. ft.	655	0.25	163.75	0.50	327.50	0.40	262.00
Manholes, complete	Number	2	100.00	200.00	100.00	200.00	100.00	200.00
Pipe, 4-inch	Lin. ft.	370	1.15	425.50	1.25	462.50	2.48	917.60
Pipe, 3-inch	Lin. ft.	2,050	0.95	1,947.50	1.00	2,050.00	1.16	2,378.00
Pipe, 1½-inch	Lin. ft.	2,700	0.50	1,350.00	0.75	2,025.00	0.72	1,944.00
Steel	Pound	5,850	0.07	409.50	0.08	468.00	0.05	292.50
Forgings, Bolts, etc	Pound	8,700	0.07	609.00	0.08	696.00	0.08	696.00
Total				$198,944.50		$147,350.50		$175,081.60

BIDS FOR NAVAL SUPPLIES.

Bids received at the bureau of supplies and accounts, navy department, Washington, D. C., Jan. 21, for material and supplies for the navy yards, included the following:

Class 64—Mare Island—1,125 Sq. Yds. Sheet Packing.

American Rubber Mfg. Co., Emeryville, Cal.	$ 6,576.00
Bowers Rubber Works, 68 Sacramento St., San Francisco, Cal.	7,941.25
Boston Belting Co., 256 Devonshire St., Boston, Mass.	9,275.00
Diamond Rubber Co., 1876 Broadway, New York	5,885.00
Gutta Percha & Rubber Mfg. Co., 126 Duane St., New York	8,472.95
B. F. Goodrich Co., Akron, O.	6,255.00
Richard H. Grey, East Oakland, Cal.	9,037.50
Leland & McKee Co., 217 Spear St., San Francisco, Cal.	3,927.00
Elliott H. Pierce, 32 California St., San Francisco, Cal.	8,390.00

Class 65—Mare Island—100 Sq. Yds. Sheet Packing.

American Rubber Mfg. Co., Emeryville, Cal.	$ 621.00
Bowers Rubber Works, 68 Sacramento St., San Francisco, Cal.	700.00
Boston Belting Co., 256 Devonshire St., Boston, Mass.	800.00
Diamond Rubber Co., 1876 Broadway, New York.	546.00
Gutta Percha & Rubber Mfg. Co., 126 Duane St., New York.	695.00
B. F. Goodrich Co., Akron, O.	530.00
Garlock Packing Co., 136 Liberty St., New York	1,125.00
Leland & McKee Co., 217 Spear St., San Francisco, Cal.	449.00
Elliott H. Pierce, 32 California St., San Francisco, Cal.	840.00

Class 66—Mare Island—240 Sq. Yds. Sheet Rubber for Gaskets.

American Rubber Mfg. Co., Emeryville, Cal.	$ 6,029.60
Bowers Rubber Works, 68 Sacramento St., San Francisco, Cal.	6,964.40
Boston Belting Co., 256 Devonshire St., Boston, Mass.	11,062.50
Diamond Rubber Co., 1876 Broadway, New York	6,018.00
Gutta Percha & Rubber Mfg. Co., 126 Duane St., New York.	8,938.50
B. F. Goodrich Co., Akron, O.	6,726.00
Richard H. Grey, East Oakland, Cal.	8,800.00
Manhattan Rubber Mfg. Co., 18 Vesey St., New York.	6,858.75
Elliott H. Pierce, 32 California St., San Francisco, Cal.	11,630.00

Class 111—Mare Island—2,600 Lbs. Tuck's Packing.

Boston Belting Co., 256 Devonshire St., Boston, Mass.	$ 1,605.00
Diamond Rubber Co., 1876 Broadway, New York	1,014.00
Dunham, Corrigan & Hayden Co., 100 Kansas St., San Francisco, Cal.	1,675.66
Gutta Percha & Rubber Mfg. Co., 126 Duane St., New York.	1,794.00
R. W. Geldart, 2 Stone St., New York	1,596.00
B. F. Goodrich Co., Akron, O.	1,011.00
Handlau-Buck Mfg. Co., 210 North Third St., Philadelphia, Pa.	*1,692.00
Leland & McKee Co., 217 Spear St., San Francisco, Cal.	858.00
Elliott H. Pierce, 32 California St., San Francisco, Cal.	1,165.00
Peerless Rubber Mfg. Co., 16 Warren St., New York.	1,625.00

Class 112—Mare Island—1,000 Lbs. Italian Hemp Packing and 4,450 Lbs. Square Packing.

Dunham, Corrigan & Hayden Co., 100 Kansas St., San Francisco, Cal.	$ 1,013.01
R. W. Geldart, 2 Stone St., New York	1,437.50
Gorham Rubber Co., 50 Fremont St., San Francisco, Cal.	1,137.62
Garlock Packing Co., 136 Liberty St., New York	1,537.50
Richard H. Grey, East Oakland, Cal.	2,083.00
H. W. Johns-Manville Co., 100 William St., New York.	1,398.50
Leland & McKee Co., 217 Spear St., San Francisco, Cal.	2,022.50
Elliott H. Pierce, 32 California St., San Francisco, Cal.	995.75
Quaker City Rubber Co., 629 Market St., Philadelphia, Pa.	1,487.50

Class 113—Mare Island—300 Lbs. Asbestos Packing and 1,225 Lbs. Asbestos Packing.

O. A. Danzenbaker, Washington, D. C.	$ 466.25
Excelsior Equipment Co., Frick Bldg., Pittsburg, Pa.	366.00
Gorham Rubber Co., 50 Fremont St., San Francisco, Cal.	517.25
Garlock Packing Co., 136 Liberty St., New York	305.00
H. W. Johns-Manville Co., 100 Williams St., New York.	616.00
Leland & McKee Co., 217 Spear St., San Francisco, Cal.	717.25
Magnesia Asbestos Supply Co., 157 Spear St., San Francisco, Cal.	586.00
Manhattan Supply Co., 127 Franklin St., New York	488.00
Elliott H. Pierce, 32 California St., San Francisco, Cal.	616.00

Class 366—League Island—10,000 Lbs. Oakum.

J. Ross Collins, 84 White St., New York	3¼c to 7c per lb.
William Wirt Clark & Son, 546 Monument St., Baltimore, Md.	$ 608.00
W. O. Davey & Sons, 164 Laidlaw Ave., Jersey City, N. J.	625.00
Excelsior Equipment Co., Frick Bldg., Pittsburg, Pa.	639.00
R. W. Geldart, 2 Stone St., New York	587.00
Montgomery & Co., 105 Fulton St., New York	573.00

Class 367—Brooklyn—About 20,000 Lbs. Oakum.

J. Ross Collins, 84 White St., New York	3¼c to 7c per lb.
William Wirt Clark & Son, 546 Monument St., Baltimore, Md.	$ 1,186.00
W. O. Davey & Sons, 164 Laidlaw St., Jersey City, N. J.	1,200.00
Excelsior Equipment Co., Frick Bldg., Pittsburg, Pa.	1,258.00
R. W. Geldart, 2 Stone St., New York	1,158.00
Montgomery & Co., 105 Fulton St., New York	1,148.00

Class 368—Norfolk—10,000 Lbs. Oakum.

J. Ross Collins, 84 White St., New York	3¼c to 7c per lb.
William Wirt Clark & Son, 546 Monument St., Baltimore, Md.	$ 613.00
W. O. Davey & Sons, 164 Laidlaw Ave., Jersey City, N. J.	625.00
Excelsior Equipment Co., Frick Bldg., Pittsburg, Pa.	649.00
R. W. Geldart, 2 Stone St., New York	597.00
Miller & Graham, Water and Frederick Sts., Baltimore, Md.	670.00
Montgomery & Co., 105 Fulton St., New York	580.00
Neville & Grubb, Portsmouth, Va.	646.90

Class 369—Boston—15,000 Lbs. Oakum.

J. Ross Collins, 84 White St., New York	3¼c to 7c per lb.
William Wirt Clark & Son, 546 Monument St., Baltimore, Md.	$ 927.00
Central Metal & Supply Co., 609 E. Lombard St., Baltimore, Md.	1,005.00
W. O. Davey & Sons, 164 Laidlaw Ave., Jersey City, N. J.	937.50
Excelsior Equipment Co., Frick Bldg., Pittsburg, Pa.	974.40
R. W. Geldart, 2 Stone St., New York	878.50
Harrington, King & Co., 79 Commercial Pl., Boston, Mass.	894.00
Montgomery & Co., 105 Fulton St., New York	861.00

Class 370—Pensacola—3,000 Lbs. Oakum.

Avery Hardware & Supply Co., Pensacola, Fla.	$ 202.50
William Wirt Clark & Son, 546 Monument St., Baltimore, Md.	205.80
W. O. Davey & Sons, 164 Laidlaw Ave., Jersey City, N. J.	202.50
Excelsior Equipment Co., Frick Bldg., Pittsburg, Pa.	216.60
R. W. Geldart, 2 Stone St., New York	202.50
Miller & Graham, Water and Frederick Sts., Baltimore, Md.	213.00
Montgomery & Co., 105 Fulton St., New York	192.00

BIDS FOR COMPLETING DRY DOCK.

Bids received at the bureau of yards and docks, navy department, Washington, D. C., opened Jan. 18, for the completion of the concrete and stone dry dock at the navy yard, New York, now about 15 per cent completed, were as follows:

Williams Engineering & Contracting Co., 21 Park Row, New York	$ 764,000‡	$ 774,000*
Phoenix Construction Co., 41 Park Row, New York	777,777‡	798,700*
James Stewart & Co., 135 Broadway, New York	1,750,000‡	1,800,000*
Gahagan & Hough, 32 East 33d St., New York	1,269,800‡	1,289,800*

‡With use of machinery, etc., now on the site.

*Without use of machinery, etc.

Francis J. Peck & Co., 731-735 Williamson building, Cleveland, inspectors of iron, steel and cement, have just issued a card giving the standard specifications for Portland and natural cement.

ADVERTISERS

The Star indicates alternate insertions, the Dagger once a month.

CLASSIFIED ADVERTISING SERVICE

PROPOSALS.

U. S. Engineer Office, 57 Park St., Grand Rapids, Mich. January 6, 1908. Sealed proposals for Construction of Sheet Pile Revetment at Muskegon Harbor, Mich., will be received here until 3 P. M., February 5, 1908, and then publicly opened. Information furnished on application. Charles Keller, Major, Engrs.

U. S. Engineer Office, Vandiver Building, Montgomery, Ala., January 2nd, 1908. Sealed proposals for constructing one creosoted wooden hull will be received at this office until 12 noon, February 1, 1908, and then publicly opened. Information furnished on application. H. B. Ferguson, Capt. Engrs.

U. S. Engineer Office, Buffalo, N. Y. Jan. 14, 1908. Sealed proposals for the construction of concrete walls for Ship Lock, Black Rock Harbor, at Buffalo, N. Y. will be received at this office until 11 o'clock a. m., March 14, 1908, and then publicly opened. Information furnished on application. H. M. Adams, Col. Engrs.

U. S. Engineer Office, 815 Witherspoon Building, Philadelphia, January 15, 1908. Sealed proposals for constructing one steel, twin-screw suction dredge for Galveston Harbor, Tex., will be received here until 2:30 P. M., February 14, 1908, and then publicly opened. Information furnished on application. J. C. Sanford, Major, Engrs.

PROPOSALS.—Sale of U. S. vessels *Pinta* and *Canonicus*.—Sealed proposals will be received at the Navy Department until noon on the 19th day of February, 1908, at which time and place they will be opened, for the purchase of the U. S. vessels *Pinta* and *Canonicus*, appraised values, $1,400 and $6,000, respectively. They will be sold for cash to the person or persons or to the corporation or corporations offering the highest price therefor. A separate proposal for each vessel bid upon must be submitted in a sealed envelope addressed to the Secretary of the Navy, Washington, D. C., endorsed "Proposals for the purchase of the U. S. S.——" (naming the vessel for which offer is made), and each proposal must be accompanied by a satisfactory certified check for not less than 10 per cent of the amount of the offer. On application to the Navy Department, forms of bids and bonds, together with the terms and conditions of sale, also a printed list giving general information concerning these vessels, will be furnished. The vessels can be examined at any time after this date by applying to the Commandants of the navy yards, Mare Island, Cal., and Norfolk, Va., respectively, where they now lie. They must be removed from the limits of said yards within such reasonable time as may be fixed by the department. The Department reserves the right to withdraw either or both of the above-named vessels from sale and to reject any or all bids. TRUMAN H. NEWBERRY, *Assistant Secretary of the Navy*. January 11, 1908.

U. S. Engineer Office, Milwaukee, Wis., January 24, 1908. Sealed proposals for building reinforced concrete caisson breakwater, pile pier, and plank cribs, removing old pier, and dredging, at Algoma Harbor, Wis., will be received here until 2 p. m., February 24, 1908, and then publicly opened. Information furnished on application. W. V. Judson, Major, Engrs.

STEAMERS FOR SALE.

FREIGHT AND PASSENGER steamer for sale, 500 gross tons. Allow 600 excursionists. Will sleep 75 night passengers. Address Box 123, THE MARINE REVIEW, Cleveland, O.

STEAM YACHT CONTALUTA for sale. 80 ft. long, 13 ft. beam, complete outfit, compound condensing engine 6 and 12 x 10 in. Wickes water tube boiler. Both engine and boiler new in 1903. Electric light outfit driven by independent engine. For further particulars address N. D. Carpenter, Detroit, Mich.

PASSENGER STEAMER FOR sale cheap. 75 ft. long by 15 ft. beam, built of best white oak, brand new, has never been in water. A bargain is sold quickly. Address Petoskey Boat Co., Petoskey, Mich.

ENGINE FOR SALE

KEROSENE MARINE ENGINE for sale, 60 H. P., Mietz & Weiss, 4 cylinder. Can be arranged to burn gasoline. This engine was used only a short time, and is practically good as new. Cost $3,700, will sell her for $1,850. Full particulars upon application. R. W. Herfurth Company, 39-41 Cortlandt St., New York.

STEAMER WANTED

STEAMER WANTED—FULL CANAL size; state age of hull and boilers; give full particulars and lowest price. T. M. Kirkwood, 165 Lowther Ave., Toronto, Ont.

TUGS FOR SALE.

TUG "JOHN E. MONK" FOR sale, 66 ft. 4 in. long, 16 ft. 4 in. beam, 9-ft. draught, 275 H. P. engine and boiler. All in good condition. For further particulars apply to J. C. Zollinger, Sandusky, O.

HELP WANTED

DREDGERRUNNER WANTED for 3 yard dipper dredge. Work on Lake Michigan and tributary waters. State experience and references. Good salary to the right man. Address B, care THE MARINE REVIEW, Cleveland, O.

GOULD'S NAUTICAL SCHOOL

CAPT. GOULD'S NAUTICAL School has opened. Established 1894. Room No. 15 Wick Block, Cleveland, Ohio.

FOR SALE, MISCELLANEOUS.

NEAFIE & LEVY F & A COMpound 26"-50" x 30" with Surface Condenser and Pumps. Will alter to 22"-50" x 30" for high steam.
13½ K. W. Electric Lighting Set.
Williamson Steering Engine.
Two Hawser Pullers (Capstans).
Two Providence Steam Windlasses.
Wheeler Surface Condenser.
Blake Vertical Duplex Air Pump and Jet Condenser. 7½" steam, 16" air, 12" stroke.
Worthington Duplex Air Pump & Jet Condenser 9" x 12" x 10".
D. C. Sturtevant Blower & Engine.
Two Scotch Boilers 12' x 12'.
Two Scotch Boilers 11' x 12'.
Two Scotch boilers 13½' x 12'.
MARVIN BRIGGS, INC.,
154 Nassau Street, New York.

FOR SALE
2 Wooden Passenger Ships
Speedy modern boats. Capacity 300 and 1000. Also number other boats for sale and wanted.
CHICAGO STEAMER EXCHANGE,
144 S. Water, CHICAGO

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C. T. BOWRING & CO., (Insurance) Ltd.,
5 and 6 Billiter Ave., LONDON,
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HULLS AND CARGOES.
We place insurances in the most advantageous markets, having unequaled facilities for procuring, in the interests of our Clients, the best obtainable rates and terms from the strongest Foreign and Home companies.
We Represent the Assured

REVISED AND ENLARGED HAND BOOK
TO THE
U. S. LOCAL MARINE BOARD EXAMINATION
For Masters and Mates
of Ocean-Going Steamships and Sailing Vessels
By CAPTAIN HOWARD PATTERSON
Containing Every Possible Practical Examination Question and Answer in Relation to Navigation, Seamanship, Handling of Steamships, Stowage of Cargo, Rules of the Road, Lights, Fog Signals, Collisions, Statute Laws, Ship's Business, and the Duties and Responsibilities of the Master, First, Second and Third Mates, Boatswain, Carpenter and Quartermaster.
FINELY PRINTED AND DURABLY BOUND. $2.50.
Book Department, Penton Publishing Co., Cleveland

BUYERS' DIRECTORY

Advertisements can be found readily by reference to the Alphabetical Index.

AIR COMPRESSION, HOISTS.
Great Lakes Engineering Works.. .....Detroit.

AIR PUMPS AND APPLIANCES.
Fore River Ship & Engine Co..... ..... Quincy, Mass.
Great Lakes Engineering Works... ..... Detroit.

ANCHORS.
Admiral Anchor Co.....Chester, Pa.
Bowers, L. M. & Co..... ..... Binghamton, N. Y.

ANTI-FRICTION METALS.
Cramp, Wm. & Sons...Philadelphia.

ANTI-RUST COATINGS.
Hardy Paint & Varnish Co..... .....Toledo, O.

ARTIFICIAL DRAFT FOR BOILERS.
American Ship Building Co..... ..... Cleveland.
Detroit Ship Building Co...Detroit.
Great Lakes Engineering Works... ..... Detroit.

ASH EJECTORS.
Great Lake Engineering Works.... ..... Detroit.

ATTORNEYS AND PROCTORS IN ADMIRALTY.
Gilchrist, Albert J.....Cleveland.
Goulder, Holding & Masten..... ..... Cleveland.
Hoyt, Dustin & Kelley...Cleveland.
Jenkins, Russell & Eichelberger.... ..... Cleveland.
Kremer, C. E.....Chicago.
MacDonald, Ray G.....Chicago.
Marshall, Alexander..Duluth, Minn.
Shaw, Warren, Cady & Oakes..... ..... Detroit.

BAROMETERS, MARINE GLASSES, ETC.
Ritchie, E. S. & Sons..... .....Brookline, Mass.

BLOCKS, SHEAVES, ETC.
Boston Lockport Block Co..... ..... Boston, Mass.

BOAT BUILDERS.
Drein, Thos., & Son..... .....Wilmington, Del.
Truscott Boat Mfg. Co..... .....St. Joseph, Mich.

BOILER COMPOUNDS.
Bird-Archer Co.....New York.
Dearborn Drug & Chemical Works. ..... Chicago.

BOILER MANUFACTURERS.
Almy Water Tube Boiler Co..... ..... Providence, R. I.
American Ship Building Co..... ..... Cleveland.
Atlantic Works..East Boston, Mass.
Briggs, Marvin.....New York.
Chicago Ship Building Co..Chicago.
Copeland Co., E. T.....New York. (Copeland Scotch Improved.)
Cramp, Wm. & Sons..Philadelphia.
Delany, P. & Co...Newburgh, N. Y.
Detroit Ship Building Co..Detroit.
Fletcher, W. A. & Co..... .....Hoboken, N. J.
Fore River Shipbuilding Co..... .....Quincy, Mass.
Great Lakes Engineering Works... ..... Detroit.
Kingsford Foundry & Machine Works.....Oswego, N. Y.
Maryland Steel Co..... .....Sparrow's Point, Md.
Marine Iron Works.....Chicago.
Milwaukee Dry Dock Co..... ..... Milwaukee.
New York Shipbuilding Co..... .....Camden, N. J.
Northwestern Steam Boiler & Mfg. Co.....Duluth, Minn.
Quintard Iron Works Co..... .....New York.
Roberts Safety Water Tube Boiler Co..... New York.
Superior Ship Building Co..... .....Superior, Wis.
Toledo Ship Building Co....Toledo.

BOILER STAYBOLTS, IRON OR STEEL, HOLLOW OR SOLID.
Falls Hollow Staybolt Co..... .....Cuyahoga Falls, O.

BRASS GOODS.
Penberthy Injector Co..... .....Detroit, Mich.

BRASS AND BRONZE CASTINGS.
Cramp, Wm. & Sons...Philadelphia.
Fore River Ship & Engine Co..... .....Quincy, Mass.
Great Lakes Engineering Works... ..... Detroit.

BRIDGES, BUILDERS OF
Scherzer Rolling Lift Bridge Co.... ..... Chicago.

BUCKETS, ORE AND COAL.
Brown Hoisting & Conveying Machine Co.....Cleveland.

CABIN AND CABINET FINISHING WOODS.
Martin-Barriss Co.....Cleveland.

CABLE GREASE.
U. S. Graphite Co., Saginaw, Mich.

CANVAS SPECIALTIES.
Baker & Co., H. H.....Buffalo.
Bunker, E. A.....New York.
Upson-Walton Co.....Cleveland.

CAPSTANS.
American Ship Windlass Co..... .....Providence, R. I.
Dake Engine Co..... .....Grand Haven, Mich.
Hyde Windlass Co.....Bath, Me.
Marine Iron Wks.....Chicago, Ill.

CEMENT, IRON FOR REPAIRING LEAKS.
Smooth-On Mfg. Co..... .....Jersey City, N. J.

CHAIN CONVEYORS, HOISTS.
Brown-Hoisting Machinery Co..... .....Cleveland, O.
General Electric Co..... .....Schenectady, N. Y.

CHAINS.
Seneca Chain Co.....Kent, O.

CHAIN HOISTS.
Boston & Lockport Block Co..... ..... Boston, Mass.

CHARTS.
Penton Publishing Co.....Cleveland.

CIRCULATORS (Automatic.)
Copeland Co., E. T.....New York.

CLOCKS (Marine and Ship's Bell) AND CHRONOMETERS.
Howard Clock Company..... .....Boston, New York, Chicago.
Ritchie, E. S. & Sons..... .....Brookline, Mass.

COAL PRODUCERS AND SHIPPERS.
Hanna, M. A. & Co.....Cleveland.
Lorain Coal & Dock Co..... ..... Cleveland.
Pickands, Mather & Co...Cleveland.
Pittsburg Coal Co.....Cleveland.

COAL AND ORE HANDLING MACHINERY.
Brown-Hoisting Machinery Co..... .....Cleveland.

COMPASSES.
Ritchie, E. S. & Son..... .....Brookline, Mass.

COMPOUND—PIPE JOINT.
U. S. Graphite Co....Saginaw, Mich.

CONDENSERS.
Great Lakes Engineering Works... ..... Detroit.
Wheeler Condenser & Engineering Co. .....New York.

CONTRACTORS FOR PUBLIC WORKS.
Breymann Bros., G. H.....Toledo.
Buffalo Dredging Co.....Buffalo.
Dunbar & Sullivan Dredging Co.... .....Buffalo.
Great Lakes Dredge & Dock Co.... ..... Chicago.
Starke Dredge & Dock Co., C. H... ..... Milwaukee.
Sullivan, M. .....Buffalo.

CORDAGE.
Baker & Co., H. H.....Buffalo.
Buffalo Ship Chandlery & Supply Co. .....Buffalo.
Columbian Rope Co...Auburn, N. Y.
Upson-Walton Co.....Cleveland.